

I-15 TRANSPORTATION CONCEPT REPORT

District 11 - System Planning

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State of California Department of Transportation
 District 11 - System Planning Branch
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TRANSPORTATION CONCEPT SUMMARY
INTERSTATE 15 / STATE ROUTE 15
11-SD-15 P.M. R0.0 - R54.2

This Transportation Concept Report (TCR) is a planning document, which describes the Department's basic approach to the development of a given corridor. Considering reasonable financial constraints and projected travel demand, this TCR establishes a 20 year transportation planning concept for Interstate 15/State Route 15 (I-15/SR-15) and identifies modal transportation options needed to achieve the concept. The concept considers operating levels of service (LOS), modal improvements, and new technologies. The TCR also considers potential long-term needs for the corridor beyond the 20-year planning period. The long term needs focus on the Post-2020 Ultimate Transportation Corridor (UTC).

The TCR is a preliminary planning phase document leading to subsequent programming and the project development process. As such, the specific proposed nature of improvements (i.e., number of lanes, access control, etc.) may change in later project development stages, with final determinations made during the Project Study Report, Project Report, and design phases.

Each TCR must be viewed as an integral part of a planned system. The TCR is based on the completion of the 20-year system. The system has been developed to meet anticipated travel demand generated from regional growth forecasts. Removal of any portion of a route from the system will adversely affect travel on parallel or intersecting routes.

TCRs are prepared by Caltrans District staff in cooperation with local and regional agencies. They are updated as necessary as conditions change or new information is obtained.

The focus of TCRs is the 2020 Transportation Concept, which includes State highway, transit service, system management and travel reduction, goods movement, International border, aviation and nonmotorized components.

Route Description

Interstate 15/State Route 15 (I-15/SR-15) is the principal north/south freeway serving the inland portion of San Diego County. The southern terminus of SR-15 (P.M. R0.0) is the junction of I-5 in the City of San Diego, just north of National City. SR-15 extends northbound to I-8 (P.M. SD R6.1), then becomes I-15 for the remainder of the route (For discussion purposes, I-15/SR-15 will be identified as I-15 for the rest of this report). I-15 continues north through the City of Escondido to the Riverside County Line/District 8 boundary (P.M. R54.3). The route continues northward through Corona, bypassing San Bernardino, then turns northeast to pass through Las Vegas, Nevada; Salt Lake City, Utah; Pocatello, Idaho; Butte, Montana and finally joins Canadian highway 4 at the U.S./Canadian International Border.

Purpose of Route

I-15 is the only State highway serving the major growth corridor from metropolitan San Diego to Riverside County. I-15 serves interregional travel by linking the San Diego metropolitan area with Mexico to the south, and the Riverside/San Bernardino area to the north. I-15 serves intraregional travel needs by serving National City, San Diego, Poway and Escondido. I-15 is a heavily utilized commuter route providing access to the growing residential communities of Tierrasanta, Mira Mesa, Scripps Ranch, Rancho Penasquitos, Sabre Springs, Carmel Mountain Ranch, Poway, Escondido, and Rancho Bernardo, as well as major employment centers located in Kearny Mesa and the Miramar area. The route also provides a connection to the 32nd Street Naval Station. I-15 is also the major truck route for goods movement connecting the Mexico Border to San Diego and Riverside/San Bernardino and continuing in a northeasterly direction to Las Vegas.

Table S-1 shows the existing facility and operating conditions for I-15 in San Diego County. The five-day Average Daily Traffic (ADT) is 1998 data.

**TABLE S-1
EXISTING FACILITY AND OPERATING CONDITIONS**

Segment/ County/ Post Mile	Location	# of Lanes/ Facility Type*	ADT	Peak Hour V/C Ratio	Peak Hour Operating LOS**
1 SD R0.0-2.2	I-5 to SR-94	6F	86,000	0.83	D
2 SD 2.2-R3.4	SR-94 to I-805	6F	71,400	0.52	B
3 SD R3.4-R5.6	I-805 to Adams Ave	8F***	43,500	0.46	B
4 SD 5.6-R6.1	Adams Ave to I-8	8F***	45,000	0.57	C
5 SD R6.1-R9.3	I-8 to SR-274	8F	170,500	0.77	C
6 SD R9.3-R10.6	SR-274 to SR-52	8F	153,000	0.79	D
7 SD R10.6-M12.1	SR-52 to SR-163	8F	124,000	0.65	C
8 SD M12.1-M15.9	SR-163 to Mira Mesa Blvd	10F + 2HOV	264,900	1.12	F ₀
9 SD M15.9-M18.2	Mira Mesa Blvd to Poway Rd	10F + 2HOV	200,500	1.00	F ₀
10 SD M18.2-M19.4	Poway Rd to SR-56	8F + 2HOV	202,200	1.19	F ₀
11 SD M19.4-M26.0	SR-56 to Pomerado Rd	8F	205,500	1.17	F ₀
12 SD M26.0-M27.6	Pomerado Rd to Centre City Pkwy	8F	195,400	1.16	F ₀
13 SD M27.6-R31.5	Centre City Pkwy to SR-78	8F	161,700	0.85	D
14 SD R31.5-R36.6	SR-78 to Deer Springs Road	8F	83,200	0.54	B
15 SD R36.6-R46.5	Deer Springs Road to SR-76	8F	76,800	0.53	B
16 SD R46.5-R54.3	SR-76 to Riverside Co. Line	8F	80,500	0.66	C

ADT = Average Daily Trip
V/C = Demand to Capacity
LOS = Level of Service

HOV = High Occupancy Vehicle Lanes
6F, 8F, 10F = (6, 8, 10) Lane Freeway

* Analysis of HOV lanes not included.

** Analysis includes auxiliary lanes where appropriate

*** Under construction and scheduled to open Fall of 2000, currently mainlane facility is operating on 4F.

2020 Transportation Concept

Table S-2 shows the transportation concept for Interstate 15, assuming that the transportation facility improvements have been completed and is fully operational.

**TABLE S-2
2020 TRANSPORTATION CONCEPT**

Segment/ Post Mile	Location	# Lanes/ Facility Type	Main Lane ADT*	Main Lane LOS**	Main Lane Concept LOS***	ML ADT*	ML LOS** (NB PM Hr.)	ML LOS** (SB AM Hr.)	ML Concept LOS	HOV Lanes ADT*	HOV Lanes LOS**	HOV Lanes Concept LOS
1 R0.0-2.2	I-5 to SR-94	8F + IC Revision + TA	115,000	D	E							
2 2.2-R3.4	SR-94 to I-805	8F + HOV/TA	111,000	E	E					27,000	C-D	D
3 R3.4-R5.6	I-805 to Adams Ave	8F + HOV/TA	133,000	E	E					28,000	C-D	D
4 5.6-R6.1	Adams Ave to I-8	8F + HOV/TA	131,000	C	E					25,000	C-D	D
5 R6.1-R9.3	I-8 to SR-274	8F + HOV/TA	200,000	F ₀	E					39,000	C-D	D
6 R9.3-R10.6	SR-274 to SR-52	8F + HOV/TA	150,000	D	E					34,000	C-D	D
7 R10.6-M12.1	SR-52 to SR-163	8F + HOV/TA	153,000	E	E					35,000	C-D	D
8 M12.1-M15.9	SR-163 to Mira Mesa Blvd	10F + 4ML/BRT	281,000	F ₁	F ₀	77,000*****	D	D	D			
9 M15.9-M18.2	Mira Mesa Blvd to Poway Rd	10F + 4ML/BRT	272,000	F ₂	F ₀	74,000*****	D	D	D			
10 M18.2-M19.4	Poway Rd to SR-56	8F + 4ML/BRT	214,000	F ₂	F ₀	74,000*****	D	D	D			
11 M19.4-M26.0	SR-56 to Pomerado Rd	8F + 4ML/BRT	215,000	F ₁	F ₀	66,000*****	C-D	C-D	D			
12 M26.0-M27.6	Pomerado Rd to Centre City Pkwy	8F + 4ML/BRT + WB	240,000	F ₀	F ₀	60,000*****	C-D	C-D	D			
13 M27.6-R31.5	Centre City Pkwy to SR-78	8F + 4ML/BRT****	203,000	F ₀	E	51,000*****	C-D	C-D	D			
14 R31.5-R36.6	SR-78 to U/R Limits	8F	145,000	E	E							
15 R36.6-R46.5	U/R Limits to SR-76	8F	137,000	E	D							
16 R46.5-R54.3	SR-76 to Riverside Co. Line	8F	149,000	E	D							

8F, 10F = (8, 10) Lane Freeway WB = Widen Lake Hodges Bridge LOS = Level of Service TA = Transit Alternative
HOV = High Occupancy Vehicle lanes ADT = Average Daily Trip BRT = Bus Rapid Transit (See Transit Component p. 34 for description)

IC = I-15/SR-94 Interchange Revisions

ML = Managed Lanes; When operable will be (3+1) lanes in the peak direction (See Highway Component p. 31 for description)

* ADT's are derived from the SANDAG Series 8 2015 Traffic Forecast projected out to the year 2020.

** Level of Service (LOS) is based on planning estimates only and is subject to change. These LOS's are not to be used for design purposes.

*** Based on SANDAG CMP LOS minimum standards; Concept LOS for Managed Lanes & HOV lanes are based on Caltrans District 11 planning standards.

**** Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

*****Managed Lane ADT's does not include Single Occupancy Vehicles (SOV's).

The concept of managed lanes is to operate a "freeway within a freeway" between the I-15 / SR-163 Interchange at Miramar and SR-78 in Escondido, that can be adjusted on demand to increase the overall travel in the corridor 24 hours a day. The proposal is to develop the lanes with the latest technologies that would maintain proper flow rates, sense problems, make adjustments at necessary locations and keep the travelers informed of their choices. The system would allow changing the lane configuration prior to the beginning of the daily commute period. Our goal is to change the lane configuration in a 30 - 45-minute time frame with moveable concrete barrier machines. The concept is to allow entry and exit openings every two- to three-mile intervals into the managed lanes. In our view, preference should continue to be given to High Occupancy Vehicles (HOV), such as carpool and buses. However, just as there is unused capacity on the current HOV lanes on I-15, the same will be true in the coming years. This proposal offers people who drive alone entrance into the lanes for a fee. Before the managed lanes reach capacity, sensors would close off Single Occupant Vehicles (SOV) access by relaying pre-programmed information to changeable message signs. In the future, the message could be relayed directly into approaching vehicles.

2020 Transportation Concept Facility Improvements

Table S-3 shows facility improvements to I-15 that is a part of the 2020 Transportation Concept. Segments without proposed improvements are not included within the table. The peak hour V/C ratio and peak hour Operating LOS listed assume completion of the proposed mainlane facility improvements.

TABLE S-3
2020 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Segment/ County/ Post Mile	Location	Improvement Description	Peak Hour V/C Ratio	Peak Hour Operating LOS*	Concept LOS**
1 SD R0.0-2.2	I-5 to SR-94	Upgrade 6F to 8F + IC Revision + TA	0.91	D	E
2 SD 2.2-R3.4	SR-94 to I-805	Upgrade 6F to 8F + HOV/TA	1.00	E	E
3 SD R3.4-R5.6	I-805 to Adams Ave	Add HOV/TA	0.95	E	E
4 SD 5.6-R6.1	Adams Ave to I-8	Add HOV/TA	0.76	C	E
5 SD R6.1-R9.3	I-8 to SR-274	Add HOV/TA	1.08	F ₀	E
6 SD R9.3-R10.6	SR-274 to SR-52	Add HOV/TA	0.84	D	E
7 SD R10.6-M12.1	SR-52 to SR-163	Add HOV/TA	0.98	E	E
8 SD M12.1-M15.9	SR-163 to Mira Mesa Blvd	Add 4ML/BRT	1.27	F ₁	F ₀
9 SD M15.9-M18.2	Mira Mesa Blvd to Poway Rd	Add 4ML/BRT	1.44	F ₂	F ₀
10 SD M18.2-M19.4	Poway Rd to SR-56	Add 4ML/BRT	1.45	F ₂	F ₀
11 SD M19.4-M26.0	SR-56 to Pomerado Rd	Add 4ML/BRT	1.34	F ₁	F ₀
12 SD M26.0-M27.6	Pomerado Rd to Centre City Pkwy	Add 4ML/BRT + WB	1.23	F ₀	F ₀
13 SD M27.6-R31.5	Centre City Pkwy to SR-78	Add 4ML/TA***	1.18	F ₀	E

HOV = High Occupancy Vehicle lane(s)

LOS = Level of Service

TA = Transit Alternative

IC = I-15/SR-94 Interchange Revisions

V/C = Demand to Capacity

6F, 8F = (6, 8) Lane Freeway

WB = Widen Lake Hodges Bridge

BRT = Bus Rapid Transit (See Transit Component p. 34 for description)

ML = Managed Lanes; When operable will be (3+1) lanes in peak direction (See Highway Component p. 31 for description)

SOURCES: Caltrans District 11 GIS/Travel Forecasting Branch, Caltrans District 11 Advanced Planning Branch, and SANDAG.

* Peak Hour Operating Level of Service includes provision of state highway, transit, and arterial improvements (LOS shown for mainlanes only)

** Concept LOS is based on the SANDAG CMP minimum LOS standard.

*** Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

I-15 Transportation Concept Facility Improvements



Segment / Location	Improvement Description	Peak Hour V/C Ratio	Peak Hour Operating LOS*	Concept LOS**
① I-5 to SR-94	Upgrade 6F to 8F + IC Revision + TA	0.91	D	E
② SR-94 to I-805	Upgrade 6F to 8F + HOV/TA	1.00	E	E
③ I-805 to Adams Ave	Add HOV/TA	0.95	E	E
④ Adams Ave to I-8	Add HOV/TA	0.76	C	E
⑤ I-8 to SR-274	Add HOV/TA	1.08	F0	E
⑥ SR-274 to SR-52	Add HOV/TA	0.84	D	E
⑦ SR-52 to SR-163	Add HOV/TA	0.98	E	E
⑧ SR-163 to Mira Mesa Blvd	Add 4ML/BRT	1.27	F1	F0
⑨ Mira Mesa Blvd to Poway Rd	Add 4ML/BRT	1.44	F2	F0
⑩ Poway Rd to SR-56	Add 4ML/BRT	1.45	F2	F0
⑪ SR-56 to Pomerado Rd	Add 4ML/BRT	1.34	F1	F0
⑫ Pomerado Rd to Centre City Pkwy	Add 4ML/BRT + WB	1.23	F0	F0
⑬ Centre City Pkwy to SR-78	Add 4ML/TA***	1.18	F0	E

HOV = High Occupancy Vehicle lane(s)

IC = I-15/SR-94 Interchange Revisions

WB = Widen Lake Hodges Bridge

ML = Managed Lanes; When operable will be (3+1) lanes in peak direction (See Highway Component p. 31 for description).

* Peak Hour Operating Level of Service includes provision of state highway, transit, and arterial improvements (LOS shown for mainlanes only).

** Concept LOS is based on the SANDAG CMP minimum LOS standard.

*** Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

**TRANSPORTATION CONCEPT REPORT
INTERSTATE 15
11-SD-15 P.M. R0.0-R54.2**

INTRODUCTION AND STATEMENT OF PLANNING INTENT

The system planning process consists of three products: the District System Management Plan (DSMP), the Transportation System Development Plan (TSDP), and the Transportation Concept Report (TCR).

The DSMP describes how the District intends to maintain, manage, and improve the District transportation system over the next 20 years. The DSMP is developed in partnership with regional and local transportation planning agencies. The DSMP summarizes 20 year planning concepts and proposed transportation improvements on a system wide level, and influences the development of future transportation concepts and development plans. It integrates land use, modal opportunities, regional arterial plans, transportation system management, transportation demand management, highway system improvements, and the District highway network into a comprehensive transportation program. The DSMP serves as the foundation for the TSDP and TCRs.

The Transportation Development Plan (TSDP) is an internal Caltrans system-planning document. Its purpose is to identify by district a reasonable and effective list of multimodal transportation improvements (infrastructure/capital outlay), strategies, and demand and system management options to improve statewide, interregional and regional mobility and Intermodal transfer of people and goods. It includes both a Recommended Plan and a Cost Constrained Plan component, and categorizes improvements into two time frames, 2001-2020 and post-2020. It is based on analysis of current and projected future travel demand. The TSDP replaces the District 11 Route Development Plan.

The TSDP is an internal "sketch" planning document that broadens the departments assessment of mobility options at an early preliminary planning stage. It expands system planning from a basic analysis of state highway route deficiencies to a larger integrated intermodal and multimodal analysis of travel corridors. The TSDP joins the principles, practices, and concepts of the Advanced Transportation System Development (ATSD) program to system planning.

Improvements, strategies, and system management options identified in the TSDP will be Caltrans "candidates" for further detailed examination in state, metropolitan, regional or local studies and processes. The TSDP is also the department's initial identification of areas under consideration for major investment studies (MIS) with metropolitan agencies and rail/transit operators. The TCR process was discussed in the Transportation Concept Summary.

Route Description

Interstate 15/State Route 15 (I-15/SR-15) is a principal north/south freeway serving the inland portion of San Diego County. The southern terminus of SR-15 (P.M. R0.0) is the junction of I-5 in the City of San Diego, just north of National City. SR-15 extends to I-8 (P.M. SD R6.1), then becomes I-15 for the remainder of the route. In San Diego County, I-15 extends north through the City of Escondido to the Riverside County Line/District 8 boundary (P.M.R54.3). The route continues north through Corona, bypassing San Bernardino, then turns northeast to pass through Las Vegas, Nevada; Salt Lake City, Utah; Pocatello, Idaho; Butte, Montana and finally joins a Canadian freeway at the U.S./Canadian International Border.

I-15, then signed U.S. 395, was added to the State Highway System in 1931. It was added to the California Freeway and Expressway System in 1959. From I-5 to I-8 the route was made part of the non-chargeable interstate system in 1984. The remainder of the route from I-8 to the Riverside County line was added to the Interstate system in 1969.

Ten State highways intersect I-15 within District 11. They are I-5, State Route 94 (SR-94), I-805, I-8, SR-274, SR-52, SR-163, SR-56, SR-78 and SR-76. The three freeways paralleling portions of I-15 include I-5, SR-163, I-805. Future highway SR-125 will also parallel portions of I-15.

Purpose of Route

I-15 is the only State highway serving the major growth corridor from metropolitan San Diego to Riverside County. I-15 serves interregional travel by linking the San Diego metropolitan area with Mexico (by intersecting routes I-5 and I-805) to the south, and the Riverside/San Bernardino area to the north. I-15 serves intraregional travel needs by serving the cities of National City, San Diego, Poway and Escondido. I-15 is a heavily utilized commuter route providing access to the growing residential communities of Tierrasanta, Mira Mesa, Scripps Ranch, Rancho Penasquitos, Sabre Springs, Carmel Mountain Ranch, Poway, Escondido, and Rancho Bernardo, as well as major employment centers located in Kearny Mesa and the Miramar area. The route also provides a connection to the 32nd Street Naval Station. I-15 is also important for goods movement and is the primary truck route linking San Diego and Mexico with the Riverside/San Bernardino areas.

Existing Facility Classifications

The current functional classification of I-15 from I-5 (P.M.0.0) to University Avenue (P.M. 4.7) is Other Principal Arterial - Freeway or Expressway. The portion from University Avenue to Meade Avenue (P.M. 5.2) is classified as an Other Principal Arterial. The portion from Meade Avenue to I-8 (P.M. R6.8) is classified as an Other Principal Arterial - Freeway or Expressway. The remaining portion of I-15 north of I-8 is classified as Interstate. The entire length of I-15 in San Diego County, which is 54.5 miles long, is included in the *National Highway System (NHS)*.

I-15 has also been included into the *Freeway and Expressway System (F&E)*. This system was established by State legislation and includes most major State Routes. It is the legislative intent that the F&E routes be constructed as freeways or expressways.

The entire portion of the I-15 corridor has been included into the *International Border Trade Corridors (IBTC)*, which is a district designation. This portion starts at the Interstate 5/ Interstate 15 interchange and proceeds the entire route up to the Riverside County line. The IBTC system is a Caltrans District 11 designated system comprised of routes of statewide significance to facilitate and increase trade, ensure safe cross-border trucking, and to improve the multimodal transportation network leading to the major international border crossings. It includes both highway and rail intended to provide for the movement of both goods and people.

The *Interregional Road System (IRRS)* was identified in 1989 as part of the legislation that serves the interregional movement of people and goods. The 1998 *Interregional Transportation Strategic Plan (ITSP)* supercedes the prior 1990 Plan required by the 1989 legislation. There are currently 87 state highway routes in the IRRS system. The entire portion of I-15 is included under the IRRS and has been designated as "high emphasis". The inclusion of the interstate as a high emphasis route was to highlight its critical importance to interregional travel.

The only portion of I-15 which is not presently part of the national network for *Surface Transportation Assistance Act (STAA)* trucks is the segment between I-805 (P.M. R3.4) and I-8 (P.M. R6.8). It is expected that when this segment is realigned and constructed as a freeway, it will also be added to this system. Besides this portion of Interstate 15, which is being widened to an eight-mainlane freeway, the entire route is otherwise considered a part of the STAA.

The entire portion of I-15 is included in ICES. The *Intermodal Corridors of Economic Significance (ICES)* System is composed of California's major seaports and airports and a network of National Highway System routes and National Highway System Connectors that link these intermodal facilities most directly, conveniently and efficiently in time and distance to intrastate, interstate, and international markets.

The portion of I-15 from SR-76 (P.M. R46.3) to the Riverside County line (P.M. R54.3) is in the *California State Scenic Highway System* and is eligible to be designated as an official State Scenic Highway. These scenic highways occur in areas of outstanding natural beauty and the program is used to protect and preserve these scenic highway corridors.

The entire length of I-15 in San Diego County is included in the *Statewide List of Lifeline Routes*. A lifeline route is a route that is deemed so critical to emergency response/life saving activities of a region or the state that it must remain open immediately following a major earthquake, or for which preplanning for detour and/or expeditious repair and reopening can guarantee through movement of emergency response activities.

For maintenance programming purposes, the State Highway System has been classified as Class 1, 2, and 3 highways based on the *Maintenance Service Level (MSL)* descriptive definitions. The MSL 1 designation contains route segments in urban areas functionally classified as Interstate, Other Principal Arterial - Freeway or Expressway, or Other Principal Arterial. MSL 2 contains route segments classified as an Other Principal Arterial - Freeway or Expressway or Other Principal Arterial not in MSL 1, and route segments functionally classified as minor arterials not in MSL 3. MSL 3 indicates a route or route segment with the lowest maintenance priority. Typically, MSL 3 contains route segments functionally classified as major or minor collectors and local roads, route segments with relatively low traffic volumes, and route segments being considered for relinquishment, rescission, or where a new alignment will replace the existing facility. Route segments where the District does not anticipate spending money and route segments where route continuity is necessary are also assigned an MSL 3 designation. I-15 is classified as a MSL 1 throughout the entire length of the route.

Route Segments

I-15 is examined in 16 segments for traffic analysis purposes. Table 1 lists segments, post-miles, locations, number of lanes and facility type and whether the segment is an urban or rural area.

TABLE 1
ROUTE SEGMENTATION

Segment	County/ Post Mile	Location	# Lanes/ Facility Type	Urban/ Rural
1	SD R0.0-2.2	I-5 to SR-94	6F	U
2	SD 2.2-R3.4	SR-94 to I-805	6F	U
3	SD R3.4-R5.6	I-805 to Adams Ave	8F*	U
4	SD 5.6-R6.1	Adams Ave to I-8	8F*	U
5	SD R6.1-R9.3	I-8 to SR-274	8F	U
6	SD R9.3-R10.6	SR-274 to SR-52	8F	U
7	SD R10.6-M12.1	SR-52 to SR-163	8F	U
8	SD M12.1-M15.9	SR-163 to Mira Mesa Blvd	10F + 2HOV	U
9	SD M15.9-M18.2	Mira Mesa Blvd to Poway Rd	10F + 2HOV	U
10	SD M18.2-M19.4	Poway Rd to SR-56	8F + 2HOV	U
11	SD M19.4-M26.0	SR-56 to Pomerado Rd	8F	U
12	SD M26.0-M27.6	Pomerado Rd to Centre City Pkwy	8F	U
13	SD M27.6-R31.5	Centre City Pkwy to SR-78	8F	U
14	SD R31.5-R36.6	SR-78 to Deer Springs Road	8F	U
15	SD R36.6-R46.5	Deer Springs Road to SR-76	8F	R
16	SD R46.5-R54.3	SR-76 to Riverside Co. Line	8F	R

U = Urban 6F, 8F, 10F = (6, 8, 10) Lane Freeway

R = Rural HOV = High Occupancy Vehicle

* Under construction and scheduled to open fall of 2000, currently mainlane facility is operating on 4F.

Existing Facility

Most of I-15 is an eight-lane freeway with auxiliary lanes at various locations. Segments 1 and 2 (P.M. R0.0-R3.4) is a six-lane freeway. Segment 3 and 4 is due to open in the fall of 2000 and will entail an eight-lane freeway with a provision for two HOV lanes. Currently these two segments run at a four-lane freeway. Segments 8 and 9 is a ten-lane freeway. In Segments 8,9, and 10, there is a barrier separated Reversible High Occupancy Vehicle (HOV) lane facility in the median of the freeway, which extends approximately 8 miles with no intermediate access points. These existing Express Lanes on I-15 from SR-163 to SR-56 is currently two lanes in the peak direction of traffic combined with a value pricing method called "Fastrak", where drivers can buy into the lanes at a price depending on the amount of variable traffic. One express bus line, the Inland Breeze Route 980/990, currently utilizes the HOV lanes from Rancho Bernardo to Downtown San Diego.

Table 2 shows the existing demand and data for the current I-15 express lanes.

TABLE 2
I-15 HOV EXPRESS LANES DATA

Month/ Year	0600-0900 SB HOV Volume	1500-1830 NB HOV Volume	Peak Hour Volume		Summary of Milestones	
			SB HOV	NB HOV	Permits/ Price	Phases/ Mode
Nov 98	2,152	2,282	1,028	916		
Oct 96		NO DATA AVAILABLE				Pre-Project
Nov 96		NO DATA AVAILABLE				
Dec 96		NO DATA AVAILABLE				500 permits/ \$50 per month
Jan 97	4,198	5,480	1,948	1,876		Phase I: Expresspass/ Monthly Decals
Feb 97	4,315	5,611	2,018	2,021	700 permits	
Mar 97	4,476	6,124	2,030	2,170	\$70 per month	
Apr 97	4,663	5,987	2,202	2,137	900 permits	
May 97	4,559	6,007	2,085	2,123		
June 97	4,260	6,140	1,858	2,181		
July 97	4,216	6,117	1,837	2,157	ETC implemented	Phase I: Expresspass/ Transponders
Aug 97	4,097	6,282	1,766	2,226		
Sept 97	4,611	5,948	2,085	2,093		
Oct 97	4,614	6,195	2,078	2,243		
Nov 97	4,768	6,684	2,039	2,179		
Dec 97	4,857	6,646	2,074	2,155		
Jan 98	4,841	6,462	2,056	2,131		
Feb 98		NO DATA AVAILABLE				
Mar 98	5,202	6,633	2,179	2,144	1,000 permits	
Apr 98	5,406	6,969	2,228	2,236	\$0.50 to \$4.00 per trip (Value Pricing)	Phase II: FasTrak/ Transponders
May 98	5,294	6,902	2,265	2,183		
June 98		NO DATA AVAILABLE				
July 98	5,102	7,006	2,011	2,347		
Aug 98	4,782	7,283	1,928	2,306		
Sept 98		NO DATA AVAILABLE				
Oct 98		NO DATA AVAILABLE				
Nov 98	5,698	7,096	2,375	2,243		
Dec 98	5,233	7,554	2,112	2,375		
Jan 99	5,088	7,104	2,105	2,254		
Feb 99	5,997	7,446	2,532	2,364	4,000 permits	
Mar 99	5,959	7,735	2,521	2,399		
Apr 99	5,748	7,324	2,331	2,287	7,763 permits	
May 99	5,776	7,267	2,410	2,280		
June 99	5,649	7,547	2,260	2,403		
July 99	5,364	8,043	2,087	2,475	8,300 permits	
Aug 99	5,231	8,071	2,010	2,503		
Sept 99		NO DATA AVAILABLE				
Oct 99		NO DATA AVAILABLE				
Nov 99		NO DATA AVAILABLE				
Dec 99	4,748	7,147	1,827	2,157		
Jan 00	6,027	7,269	2,413	2,312	>12,000 permits	SB 252 extends FasTrak 4 years.

HOV = High Occupancy Vehicle Lane(s)

SB = Southbound

NB = Northbound

ETC = Electronic Toll Collection

A physical description of the existing facility geometrics in a segment-specific format is shown in Table 3.

TABLE 3
EXISTING FACILITY GEOMETRICS

Segment	Post Mile	# Lanes & Facility Width	Outside Shoulder Width	Inside Shoulder Width	Maximum R/W Width	Median Width	Grade Line
1	R0.0-2.2	6F @ 3.7 (12)	2.4-3.0 (8-10)	1.5-3.0 (5-10)	61.0-91.4 (200-300)	3.7-30.2 (12-99)	F
2	2.2-R3.4	6F @ 3.7 (12)	2.4-3.0 (8-10)	0.6-3.0 (2-10)	30.5 (100)	6.7-16.5 (22-54)	R
3*	R3.4-R5.6	8F** @ 3.7 (12)	0.6-5.5 (2-18)	0.6-1.5 (2-5)	24.4 (80)	1.2-16.5 (4-54)	F & R
4*	5.6-R6.1	8F** @ 3.7 (12)	2.4-3.0 (8-10)	0.3-2.4 (1-8)	61.0 (200)	1.2-9.1 (4-30)	R
5	R6.1-R9.3	8F @ 3.7 (12)	2.4-3.0 (8-10)	2.4-9.8 (8-32)	61.0 (200)	9.1-25.6 (30-84)	F
6	R9.3-R10.6	8F @ 3.7 (12)	2.4-3.0 (8-10)	2.4 (8)	61.0 (200)	25.6 (84)	F
7	R10.6-M12.1	8F @ 3.7 (12)	3.0 (10)	2.4 (8)	61.0 (200)	30.2 (99)	F
8	M12.1-M15.9	10F + 2HOV @ 3.7 (12)	3.0 (10)	1.5-2.4 (5-8)	61.0-112.8 (200-370)	21.3-30.2 (70-99)	F & R
9	M15.9-M18.2	10F + 2HOV @ 3.7 (12)	2.4-3.0 (8-10)	2.4 (8)	182.9 (600)	21.3 (70)	R
10	M18.2-M19.4	8F + 2HOV @ 3.7 (12)	2.4-3.0 (8-10)	2.4 (8)	109.7 (360)	21.3 (70)	R
11	M19.4-M26.0	8F @ 3.7 (12)	3.0 (10)	2.4 (8)	91.4-109.7 (300-360)	14.3-23.2 (47-76)	R
12*	M26.0-M27.6	8F*** @ 3.7 (12)	2.4-3.0 (8-10)	2.4 (8)	91.4-128.0 (300-420)	9.1-14.0 (30-46)	R & F
13	M27.6-R31.5	8F @ 3.7 (12)	3.0 (10)	2.4 (8)	91.4 (300)	14.0 (46)	R
14	R31.5-R36.6	8F @ 3.7 (12)	2.4-3.0 (8-10)	2.4 (8)	91.4 (300)	14.0-21.3 (46-70)	R
15	R36.6-R46.5	8F @ 3.7 (12)	3.0 (10)	2.4 (8)	30.5-67.1 (100-220)	21.3-30.2 (70-99)	R
16	R46.5-R54.3	8F @ 3.7 (12)	3.0 (10)	2.4 (8)	30.5 (100)	21.3 (70)	R

Grade Line Designations:

F = Flat

R = Rolling

Note: Widths are in meters (parenthesis widths are in feet)

6F, 8F, 10F = (6, 8, 10) Lane Freeway

HOV = High Occupancy Vehicle lane

R/W = Right of Way

* Widths for these segments are temporary until full capacity can be opened to the public.

** Under construction and scheduled to open fall of 2000, currently mainlane facility is operating on 4F.

***Entire segment is 8F with one exception of the Lake Hodges Bridge, which has just been reconfigured to 5 lanes crossing the bridge heading northbound.

The location, direction and number of auxiliary lanes on I-15 are shown in Table 4. There has been a significant increase in the number of auxiliary lanes over the past decade to temporarily relieve congestion until a more permanent solution can be agreed upon for the increasing demand in commute traffic. The Clairemont Mesa Boulevard/I-15 interchange has been upgraded and now has a separated connector.

**TABLE 4
EXISTING AUXILIARY LANES**

Location	Direction	Number	Connectors
National Avenue to I-5	Northbound	1	-
Ocean View Boulevard to National Avenue	Southbound	1	-
Ocean View Boulevard to National Avenue	Northbound	1	-
Imperial Avenue to Ocean View Boulevard	Northbound	1	-
Market Street to Imperial Avenue	Southbound	1	-
Market Street to Imperial Avenue	Northbound	1	-
SR-94 to Market Street	Southbound	1	-
SR-94 to Market Street	Northbound	1	-
I-805 to SR-94	Southbound	1	-
I-805 to SR-94	Northbound	2	-
San Diego Mission Road to I-8	Southbound	2	-
San Diego Mission Road to I-8	Northbound	2	-
Friars Road to San Diego Mission Road	Southbound	1	-
Friars Road to San Diego Mission Road	Northbound	1	-
Aero Drive to Friars Road	Southbound	1	-
Aero Drive to Friars Road	Northbound	1	-
Balboa Avenue/ Tierrasanta Boulevard to Aero Drive	Southbound	1	-
Balboa Avenue/ Tierrasanta Boulevard to Aero Drive	Northbound	1	-
Clairemont Mesa Blvd to Balboa Ave/ Tierrasanta Blvd	Southbound	1	-
Clairemont Mesa Blvd to Balboa Ave/ Tierrasanta Blvd	Northbound	1	-
SR-52 to Clairemont Mesa Boulevard	Southbound	-	2
SR-52 to Clairemont Mesa Boulevard	Northbound	-	2
SR-163 to SR-52	Southbound	1	-
Miramar Way to SR-163	Northbound	1	-
Miramar Road/ Pomerado Road to Miramar Way	Northbound	1	-
Carroll Canyon Road to Miramar Road/ Pomerado Road	Southbound	1	-
Carroll Canyon Road to Miramar Road/ Pomerado Road	Northbound	1	-
Mira Mesa Blvd to Carroll Canyon Road	Northbound	1	-
Mercy Road/ Scripps Poway Parkway to Mira Mesa Road	Southbound	1	-
Mercy Road/ Scripps Poway Parkway to Mira Mesa Road	Northbound	1	-
Poway Road to Mercy Road/ Scripps Poway Parkway	Northbound	1	-
Carmel Mountain Road to Ted Williams Parkway/ SR-56	Northbound	1	-
Bernardo Center Drive to Camino Del Norte	Northbound	1	-
Rancho Bernardo Road to Bernardo Center Drive	Northbound	1	-
Via Rancho Pkwy/Bear Valley Pkwy to W. Bernardo Dr/Pomerado Dr	Northbound	1	-
Centre City Pkwy to Via Rancho Pkwy/ Bear Valley Pkwy	Southbound	1	-
Centre City Pkwy to Via Rancho Pkwy/ Bear Valley Pkwy	Northbound	1	-
Valley Parkway to 9 th Avenue	Southbound	1	-
Valley Parkway to 9 th Avenue	Northbound	1	-
SR-78 to Valley Parkway	Southbound	1	-
SR-78 to Valley Parkway	Northbound	2	-

Freeway ramp meters are designed to maximize the freeway's full capacity, reduce traffic congestion and accidents, and reduce motorist delays by improving commuter peak period travel times. Metered ramps control the rate at which traffic enters the freeway. In many cases, special lanes are provided on these ramps for carpools, vanpools and buses. Central computer control ramp metering is responsive to real time traffic speeds, volumes and congestion levels, and the metering rate can be adjusted as appropriate. Table 5 lists existing ramp meter locations along I-15.

**TABLE 5
EXISTING RAMP METERS**

SOUTHBOUND	NORTHBOUND
Friars Road ¹	Friars Road ¹
Aero Drive ¹	Aero Drive ¹
Eastbound Balboa Avenue ¹	Eastbound Balboa Avenue
Westbound Balboa Avenue ¹	Westbound Balboa Avenue
Clairemont Mesa Boulevard ¹	Clairemont Mesa Boulevard
Miramar Road ¹	Miramar Road
Pomerado Road	Pomerado Road
Carroll Canyon Road	Carroll Canyon Road ¹
Eastbound Mira Mesa Boulevard ¹	Eastbound Mira Mesa Boulevard
Westbound Mira Mesa Boulevard	Westbound Mira Mesa Boulevard ¹
Mercy Road ¹	Mercy Road ¹
Poway Road	Poway Road
Rancho Penasquitos Boulevard	Rancho Penasquitos Boulevard
Ted Williams Parkway ¹	Ted Williams Parkway
Carmel Mountain Road ¹	Carmel Mountain Road ¹
Camino Del Norte	Camino Del Norte ¹
Bernardo Center Drive	Bernardo Center Drive ¹
Eastbound Rancho Bernardo ¹	Eastbound Rancho Bernardo ¹
Westbound Rancho Bernardo ¹	Westbound Rancho Bernardo ¹
W. Bernardo Drive	Pomerado/Highland Valley Road
Via Rancho Parkway ¹	Fairmount Avenue ²
Centre City Parkway ¹	Miramar Way ²
Citracado Parkway ¹	
Auto Parkway/ 9 th Street ¹	
Valley Parkway ¹	
El Norte Parkway ¹	
Murphy Canyon Road ¹	
Miramar Way ^{1 & 2}	

¹ Indicates presence of preferential carpool lane

² Non-Operating ramp meter

There are several other arterial streets paralleling or intersecting I-15 that could provide an alternative to commuters wishing to avoid peak hour congestion on the freeway. These streets have the potential to serve as alternative routes for commuters. Currently, these streets fail to provide an effective alternative due to physical inadequacies, numerous traffic signals, access conflicts, and general traffic congestion. Improvements will be required in order to provide efficient

alternatives for commuters. Listed in Table 6 are some selected arterial streets that parallel or intersect I-15.

**TABLE 6
SELECTED ARTERIAL STREETS**

Segment	Arterial Name	Description
3-4	Fairmount Ave/Mission Gorge Rd	El Cajon Blvd to Friars Rd
4-5	Santo Rd	Aero Dr to SR-52
4-9	Ruffin Rd/Kearny Villa Rd/ Black Mountain Rd	Aero Dr to Carmel Mountain Rd
6	Clairemont Mesa Blvd/ Regents Rd	I-15 to SR-52
6-7	Balboa Ave/ Garnet Ave/ Balboa Ave	Grand Ave to I-15
7-8	Camino Ruiz	Miramar Rd to Calle Cristobal
8	Scripps Ranch Blvd	Mira Mesa Blvd to Carroll Canyon Rd
8	La Jolla Village Dr/ Miramar Rd	North Torrey Pines Rd to I-15
8-9	Mira Mesa Blvd	I-805 to I-15
7-10	Pomerado Rd/ W. Bernardo Dr	Miramar Rd to Highland Valley Rd
9	Scripps Poway Pkwy	I-15 to SR-67
9-10	Sabre Springs Pkwy/ Rancho Carmel Dr/ Carmel Mountain Rd	Poway Rd to Camino Del Norte Rd
9-10	Rancho Bernardo Rd/ Espola Rd	Poway Rd to I-15
10-11	Ted Williams Pkwy (SR-56)/ Twin Peaks Rd	I-15 to Espola Rd
11	Del Mar Heights Rd (SA 710)/ Bernardo Center Dr	I-5 to I-15
11-12	Via Rancho Pkwy/ Del Dios Highway/ West Valley Pkwy/ East Valley Pkwy	I-15 to Bear Valley Parkway
12-13	Centre City Pkwy	South Escondido City Limits to Deer Springs Rd
14-15	Champagne Blvd/ Old Highway 395	Deer Springs Rd to Mission Rd
14	Questhaven Rd	I-15 to Rancho Santa Fe Rd
11-14	Bear Valley Pkwy/ Via Rancho Pkwy	I-15 to SR-76
16	Mission Rd (S-13)	I-15 to SR-76

Park and ride facilities encourage and support the use of commuter or express transit and car/vanpooling for a portion of longer vehicle trips and consequently reduce vehicle miles of travel (VMT) within the San Diego region. There are several Park and Ride lots near or adjacent to I-15. They are at the following locations:

- #3: Felicita Plaza Shopping Center, Escondido Boulevard
- #4: Carmel Mountain Road and Freeport Road (Shopping Center)
- #6: I-15 at Mira Mesa Boulevard
- #11: Route 78 at Broadway
- #16: Poway Road at Sabre Springs Parkway
- #18: Ted Williams Parkway (SR-56) and Sabre Springs Parkway
- #19: I-15 at SR-76
- #26: Rancho Carmel Drive at Carmel Mountain Road*
- #30: I-15 at El Norte Parkway
- #31: Rancho Carmel Road at Provincial Place (2 Stories)
- #33: Deer Springs Road at Serendipity Lane

- #34: I-15 at Mountain Meadows Road at Champagne Boulevard
- #35: I-15 at Gopher Canyon Road at Champagne Boulevard
- #38: Seven Oaks at Calvary Chapel*
- #46: Route 76 at Sweetgrass Lane, Bonsall (Evangelical Free Church)
- #48: Twin Peaks Rd. at Budwin Ln., Poway (St. Gabriel's Catholic Church)
- #51: I-15 at Rancho Penasquitos Boulevard
- #52: Community Road at Twin Peaks Road
- #53: Carmel Mountain Road (Church of Nazarene)*
- #54: I-15 at Via Rancho Parkway
- #57: Carmel Mountain Road at Stoney Creek Road*
- #58: Black Mountain Road at Hillary Drive (Near Miramar College)*
- #64: East Valley Parkway at Citrus Avenue (Community Center)
- #65: I-15 at Rancho Bernardo Road
- #66: Centre City Parkway at Decatur Way

* These park and ride lots are operating under contract agreement with private parties.

At the present time, express bus service operating in the I-15 corridor includes San Diego (SD) Transit Route 40, which provides peak period service between downtown San Diego and San Carlos/Fletcher Hills. This route utilizes the portion of I-15 from SR-94 to I-805. SD Transit Route 70 also provides peak period service between Downtown San Diego and University Avenue/69th Street and uses the portion of I-15/40th Street from SR-94 to University Avenue. SD Transit Route 270 provides one A.M. and P.M. peak period trip between downtown San Diego and Tierrasanta. This route travels on I-15 from I-8 to Aero Drive. San Diego Transit Route 20 provides local bus service between downtown San Diego and the communities along the I-15 corridor as far north as North County Fair in Escondido. This route operates on 15-minute headways during the peak period and 30-minute headways during the rest of the week. San Diego Transit Route 210 provides peak period service at 30-minute headways between downtown San Diego and Mira Mesa. This route utilizes I-15 and Kearny Villa Road north of the I-15/SR-163 junction.

There are five County Transit Express Routes operating in the I-15 corridor. Route 810 operates on 15-minute headways between downtown San Diego and the Escondido Transit Center during the rush hour commutes. Route 820 operates on 30-minute headways between downtown San Diego and Poway. Route 850 operates on 30-minute headways from downtown San Diego to Rancho Penasquitos. Route 860 operates on 30-minute headways between downtown San Diego and Rancho Bernardo/North County Fair. The newest express bus is Route 990, the Inland Breeze, which is solely funded by Fastrak revenues and operates on 30-minute headways between Carmel Mountain Ranch-Hillcrest via Fashion Valley. All five express routes operate during the peak periods and travel on I-15 and SR-163.

Greyhound also provides intercity bus service in the I-15 corridor with a major stop at North County Fair in Escondido before continuing north into Riverside County.

The *Regional Transportation Plan (RTP) (May 2000)* includes a 2020 transit plan for the San Diego region. On Interstate 15 from I-5 to North County Fair Shopping Center is identified as a transit way corridor. Either a high level of regional bus service or some form of transit guideway service could provide transit service in this corridor.

Within the Interstate 15 corridor, bicycle travel is primarily on parallel arterials due to the fact that they are better suited to provide a safe bicycling environment. One of the few exceptions is an existing bike path along the East Side of I-15 connecting Mira Mesa Boulevard and Poway Road.

Another portion of the I-15 across Lake Hodges Bridge is temporarily open for bicycle use connecting Pomerado Road/Bernardo Drive to Via Rancho Parkway/Bear Valley Parkway. With the usage of TEA-21 funds in excess of \$3 million dollars, there is a new bicycle/ pedestrian bridge expected to be constructed beginning the summer of 2001. This project will provide the only means for bicyclists or pedestrians to cross the San Dieguito River for a distance of 19.65 miles (from Via de Santa Fe to Bandy Canyon Road), with the exception of the I-15 freeway bridge, which does permit bicycle traffic. This project will connect the San Dieguito River Park's Coast to Crest trail on the north side of Lake Hodges with trails on the south side of the lake. This project will facilitate bicycle commuting between Escondido and Rancho Bernardo. Additional future bicycle facilities are planned for a differing number of surface streets within the I-15 corridor.

SOCIO-ECONOMICS

This section further discusses existing conditions and introduces future Post-1998 State Transportation Improvement Program (STIP)/No Build conditions for I-15. This section also includes a corridor growth and demographic analysis for existing and future conditions in the I-15 corridor.

Existing and Future (2020 No Build) Operating Conditions

Table 7 shows existing and future operating conditions for I-15. Existing conditions reflect 1998 data. Future conditions are based on Caltrans traffic projections and the San Diego Association of Governments (SANDAG) Series 8 Regional Population and Employment forecasts for the year 2020. Future No Build conditions assumes completion of only those projects in the local transportation sales tax program (TransNet) and the 1998 STIP.

TABLE 7
EXISTING AND FUTURE (2020 NO BUILD) OPERATING CONDITIONS

Segment/ County/ Post Mile	Location	Year	# Lanes/ Facility Type	ADT	Peak Hour V/C Ratio	Peak Hour Operating LOS*
1 SD R0.0-2.2	I-5 to SR-94	1998	6F	86,000	0.83	D
		2020	6F	123,000	1.29	F ₁
2 SD 2.2-R3.4	SR-94 to I-805	1998	6F	71,400	0.52	B
		2020	6F	108,000	1.00	E
3 SD R3.4-R5.6	I-805 to Adams Ave	1998	8F**	43,500	0.46	B
		2020	8F	133,000	0.96	E
4 SD 5.6-R6.1	Adams Ave to I-8	1998	8F**	45,000	0.57	C
		2020	8F	88,000	0.63	C
5 SD R6.1-R9.3	I-8 to SR-274	1998	8F	170,500	0.77	C
		2020	8F	194,400	1.09	F ₀
6 SD R9.3-R10.6	SR-274 to SR-52	1998	8F	153,000	0.79	D
		2020	8F	173,500	1.09	F ₀
7 SD R10.6-M12.1	SR-52 to SR-163	1998	8F	124,000	0.65	C
		2020	8F	168,000	1.17	F ₀
8 SD M12.1-M15.9	SR-163 to Mira Mesa Blvd	1998	10F + 2HOV	264,900	1.12	F ₀
		2020	10F + 2HOV	316,900	1.45	F ₂
9 SD M15.9-M18.2	Mira Mesa Blvd to Poway Rd	1998	10F + 2HOV	200,500	1.00	F ₀
		2020	10F + 2HOV	300,000	1.72	F ₃
10 SD M18.2-M19.4	Poway Rd to SR- 56	1998	8F + 2HOV	202,200	1.19	F ₀
		2020	8F + 2HOV	255,000	1.74	F ₃
11 SD M19.4-M26.0	SR-56 to Pomerado Rd	1998	8F	205,500	1.17	F ₀
		2020	8F	251,700	1.64	F ₃
12 SD M26.0-M27.6	Pomerado Rd to Centre City Pkwy	1998	8F	195,400	1.16	F ₀
		2020	8F	289,900	1.78	F ₃
13 SD M27.6-R31.5	Centre City Pkwy to SR-78	1998	8F	161,700	0.85	D
		2020	8F	230,500	1.40	F ₂
14 SD R31.5-R36.6	SR-78 to Deer Springs Road	1998	8F	83,200	0.54	B
		2020	8F	131,000	0.99	E
15 SD R36.6-R46.5	Deer Springs Road to SR-76	1998	8F	76,800	0.53	B
		2020	8F	127,000	0.98	E
16 SD R46.5-R54.3	SR-76 to Riverside County Line	1998	8F	80,500	0.66	C
		2020	8F	117,600	0.98	E

ADT = Average Daily Traffic

V/C = Demand to Capacity

6F, 8F, 10F = (6, 8, 10) Lane Freeway

LOS = Level of Service

HOV = High Occupant Vehicle lane(s)

* Peak Hour Operating Level of Service includes provision of state highway, transit, and arterial improvements.

** Under construction and scheduled to open Fall of 2000, currently mainlane facility is operating on 4F.

Average accident data for the three-year period from June 30, 1996 to July 31, 1999 was analyzed for I-15. Criteria used for determining an accident concern are based on whether actual total accident rates exceeded expected total accident rates by 1.5 times. Based on this criteria, the portions from postmile 002.226 to R003.367 (SR-94 to I-805) have an actual total accident rate that exceeds the expected total accident rate by 1.84 times.

Corridor Growth and Demographics

The SANDAG Series 8 Regional Population and Employment Forecast anticipates a population growth change in the San Diego Region from 2.66 million people in 1995 to 3.85 million people in 2020. This represents a 44.4 percent increase in population. Series 8 also projects the Housing Stock in the San Diego Region will increase from 996,684 units 1995 to 1.4 million units in 2020, a 40.9 percent change. The Total Labor Force is also expected to grow from 1.19 million workers in 1995 to 1.7 million workers in 2020 for an increase of 45.1 percent. These growth changes will create a demand for additional public facilities. Complementary land use and transportation improvements will be required.

Table 8 shows current population, a 2020 projected population estimate, and the resultant growth rate for the four jurisdictions that I-15 traverses within San Diego County.

TABLE 8
JURISDICTIONAL POPULATION GROWTH

Jurisdiction	1995	2020	Percent Change
San Diego	1,174,422	1,693,533	44
Poway	68,222	97,450	43
Escondido	132,795	180,442	36
North County (East)*	211,402	321,055	52

* This major statistical area includes San Marcos, Vista, Valley Center, Pauma, and Fallbrook.
Source: SANDAG Series 8 Regional Growth Interim Forecast (February 1999)

I-15 traverses the rapidly growing inland corridor between San Diego and Riverside. The land use along the corridor from San Diego to Escondido consists of a variable mix of industrial, office buildings, military bases, shopping centers, and single and multiple unit residential developments.

Future developments along the I-15 corridor from North Escondido to Riverside include possible additional residential development and potential commercial usage. Increased growth in Riverside County, especially in the Temecula, Murrieta, Wildomar, and Lake Elsinore areas will also significantly impact this portion of the corridor. Large planned communities are being developed in these areas that will increase housing from 19,053 units in 1994 to 64,727 units in 2020, a 240% increase. It is projected that commute trips will increase in the southerly direction because of the imbalance of the jobs/housing differential in these areas.

Table 9 lists current and future housing, employment and population data for selected jurisdictions in San Diego County.

TABLE 9
POPULATION, HOUSING AND EMPLOYMENT GROWTH, SELECTED SAN
DIEGO COUNTY JURISDICTIONS

Location	Year	Total Population	% Change from Base Year	Total Housing Units	% Change from Base Year	Total Employment	% Change from Base Year
Poway	1995	68,222	N/A	24,568	N/A	22,265	N/A
	2005	94,261	38.2	32,817	33.6	44,123	98.2
	2010	96,042	40.8	33,734	37.3	47,158	118.0
	2020	97,450	42.8	34,388	40.0	53,214	139.0
Escondido	1995	132,795	N/A	48,296	N/A	49,881	N/A
	2005	158,943	19.7	55,484	14.9	63,518	27.3
	2010	168,164	26.6	59,362	22.9	65,717	31.7
	2020	180,442	35.9	64,034	32.6	70,969	42.3
San Marcos	1995	60,241	N/A	22,775	N/A	30,165	N/A
	2005	77,609	28.8	27,878	22.4	55,638	84.8
	2010	82,712	37.3	30,124	32.3	58,478	93.8
	2020	95,659	58.8	34,806	52.8	67,535	123.9
Vista	1995	87,104	N/A	31,412	N/A	22,015	N/A
	2005	102,809	18.0	35,458	12.9	35,263	60.2
	2010	109,347	25.5	38,090	21.3	38,343	74.2
	2020	115,458	32.6	40,312	28.3	44,878	103.9
Fallbrook	1995	40,929	N/A	14,824	N/A	12,695	N/A
	2005	49,242	20.3	17,021	14.8	15,951	25.6
	2010	53,183	29.9	18,614	25.6	16,438	29.5
	2020	59,793	46.1	21,174	42.8	17,833	40.5
Valley Center	1995	17,996	N/A	6,969	N/A	3,999	N/A
	2005	24,471	36.0	8,744	25.5	5,082	27.1
	2010	28,252	57.0	10,207	46.5	5,185	29.7
	2020	40,244	123.6	14,643	110.1	5,796	44.9
Pauma	1995	5,132	N/A	1,631	N/A	914	N/A
	2005	5,661	10.3	1,760	7.9	1,082	18.4
	2010	6,296	22.7	1,988	21.9	1,108	21.2
	2020	9,901	92.9	3,177	94.8	1,205	31.8
San Diego	1995	1,174,422	N/A	453,515	N/A	645,159	N/A
	2005	1,403,874	19.5	518,784	14.4	780,148	20.9
	2010	1,499,437	27.7	559,327	23.3	801,216	24.2
	2020	1,693,533	44.2	631,237	39.2	869,977	34.8
San Diego Region	1995	2,669,200	N/A	996,684	N/A	1,186,837	N/A
	2005	3,223,474	20.8	1,153,736	15.8	1,513,234	27.5
	2010	3,437,697	28.8	1,245,057	24.9	1,565,824	31.9
	2020	3,853,297	44.4	1,404,231	40.9	1,721,651	45.1

Source: SANDAG Series 8 Regional Growth Forecast, February 1999.

Another methodology to ensure compatibility between land use and the statewide transportation system is the Caltrans Intergovernmental Review process. Potential development projects are reviewed to determine what impacts they may have on State transportation facilities. Impacts can include level of service changes, right of way protection issues, operations and/or maintenance issues, or growth inducing/cumulative impacts. Intergovernmental Review also analyzes proposed developments to ensure consistency with regional and state transportation planning documents.

Potential major development projects within the I-15 corridor that will significantly increase congestion on area surface streets, freeway interchanges, and on I-15 are shown in Table 10. Although not listed in the table, there may be an additional number of smaller development projects that may have a cumulative impact on traffic in the corridor. The table includes projects for which an Environmental Impact Report, a Specific Plan or a Master Plan has been or will be prepared. Because of uncertainties associated with the existing and future socioeconomic and political climates, the scale of development may be subject to change, and it is possible that some of the listed projects may not be developed.

TABLE 10
TRIP INDUCING DEVELOPMENT PROJECTS

Segment	Project Name	Dwelling Units	Square Footage	Acreage	Trips Generated Daily
1	Vista Verde Apartments	40		2.6 (1.1)	320
3	Regional Transit Center		31,835 (2,957)		1,618
5	Mission City	3,321		220 (8.9)	39,500
5	La Mirage Apartments	340		11.7 (4.7)	2,720
5	Aero 7-11 Gas Station		2,940 (273)	0.88 (0.4)	966
8	MCAS Miramar			24,000 (9,713)	10,850
8	Carroll Canyon Industrial Park			57.8 (23.4)	N/A
8	Thrifty Gas Station		1,920 (178)	0.62 (0.3)	1,400
9	Scripps Gateway	444		14.5 (5.9)	25,960
9	Canyon Hills		20,500 (1904)		5,280
9	Mercy Road Homes	113		12.7 (5.1)	1,130
9	Poway Wet/Wild		50,990 (4,737)	102.1 (41.3)	7,000
9	Treena Mesa			30.2 (12.2)	4,040
11	Hilton Inn	160	40,500 (3,762)	3.6 (1.5)	1,600
11	Golem Project	67		67 (27)	670
11	4S Ranch	4,965	500,000 (46,450)	891 (361)	82,860
11	Black Mountain Ranch			4,172 (1,688)	18,600
11	Carmel Mountain Ranch				176,999
11	Sharp Rees Stealy		55,000 (5,110)	7.7 (3.1)	2,750
11	Santa Fe Valley	1,200		3,166 (1,281)	22,040
11	Christopher Hill	400	95,000 (8,826)	169.2 (68.5)	5,796
11	Pinery Golf Center			13.0 (5.3)	910
11	Saddle Club Estates	44			440
12	North County Fair Storage			2.44 (0.99)	202
12	Hodges Golf Center			22 (8.9)	1,320
13	Cielo Del Norte	187		580 (234.7)	2,244
13	McCrink Escondido		90,734 (8,429)	4.17 (1.7)	378
13	Encove Alzheimer Facility			3.63 (1.5)	294
13	Suncal Homes	34		12.4 (5)	340
13	24 Hour Fitness Center		24,429 (2,269)	2.12 (0.9)	1,000
13	Escondido Promenade Expansion		6,880 (639)		826
13	Corp. Plaza		93,020 (8,642)		3,690
13	Infiniti Auto Sales		14,000 (1,301)	2.14 (0.9)	700
13	La Terraza Corporation		214,250 (19,904)	12.96 (5.2)	3,966
13	Escondido Resource Recovery Transfer Station Expansion		17,000 (1,579)	5.97 (2.4)	812
14	Escondido Elks Club		14,208 (1,320)	4.67 (1.9)	
14	Calvary Chapel		3,600 (334)		45
14	El Norte	95		32.6 (13.2)	950
15	Champagne Gardens	420	73,000 (6,782)	80.0 (32.4)	8,900
15	Orchard Run	300		118.2 (47.8)	3,443
15	Keys Canyon Creek	289		70 (28.3)	2,890
TOTALS:		12,419	1,349,806 (125,396)	33,895.9 (13,717.59)	445,449

Source: Caltrans District 11 Planning Studies Branch

* Some trip inducing projects are residential or commercial or a mixture of both.

Note: Square footage is denoted as (square meters-m²) within the parentheses.
Acreage is denoted as (hectares) within the parentheses.

Regional Growth Management Strategy

The San Diego region's quality of life is greatly dependent upon the ability to better manage the transportation system and to provide people with needed levels of mobility within environmental, economic, and social constraints.

In November 1988, the voters of San Diego County approved Proposition C that called for the establishment of a Regional Planning and Growth Management Review Board, and the preparation of a Regional Growth Management Strategy (**RGMS**). The San Diego Association of Governments' (**SANDAG**) Board of Directors serves as the Regional Planning and Growth Management Review Board, and is advised by the Regional Growth Management Technical Committee which is composed of regional planning leaders. In May 1997, SANDAG's Executive Board agreed to serve as the Board Subcommittee on Growth Management. The Subcommittee provides policy directions based upon recommendations made by the Technical Committee.

Originally adopted in 1993, by the SANDAG Board, the RGMS success depends on the cooperation of local governments and agencies, the business community, and personal changes made by individuals.

The Strategy provides a comprehensive framework for effectively dealing with the impacts of growth in the region. The actions contained in the RGMS are intended to preserve or improve the region's quality of life. The Strategy addressed eight quality of life factors initially with an additional six added through local initiatives in subsequent years. The 14 quality of life factors include:

- ◆ Air Quality
- ◆ Transportation/Congestion Management
- ◆ Water Supply and Quality
- ◆ Sewage Treatment
- ◆ Sensitive Lands and Open Space Preservation and Protection
- ◆ Solid Waste Management
- ◆ Hazardous Waste Management
- ◆ Housing
- ◆ Shoreline Preservation
- ◆ Economic Prosperity
- ◆ Energy
- ◆ Land Use Distribution
- ◆ Series 8 Interim Regional Growth Forecasts
- ◆ Water Quality

The Strategy was further refined in July 1999, with the launch of the new growth management strategy, REGION2020. The Strategy consists of the following five interrelated and interdependent components:

- ◆ Creating economic prosperity
- ◆ Providing equitable and accessible transportation
- ◆ Preserving natural habitats and open space
- ◆ Increasing the opportunities for home ownership
- ◆ Enacting a new state-local tax system

The region-wide growth forecast, provided by SANDAG, indicates another 1 million plus people will be added to the county by 2020. This population could easily translate to more than 500,000 additional vehicles and over 400,000 new jobs. This additional population will further strain the housing stock, transportation system, public services, environment and economy. REGION2020 hopes to address the San Diego region's growing population proactively.

Recent developments in the evolving REGION2020 arena include the development of a definition of smart growth in the San Diego region. The June 2000 working draft on "REGION2020: Smart Growth Definition, Principles, and Designations" states that, "Smart growth, is a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planning job centers and public facilities". Also identified in the REGION2020 effort are principles for smart growth implementation on both the local and regional/state levels. Additionally, the June 2000 working draft defines how designations of smart growth areas will be made. SANDAG will be working with local jurisdictions to identify target areas within their jurisdictions. Target areas should strive to accommodate higher residential and/or employment densities through: new development, redevelopment or infill, mixed use development and pedestrian oriented design, better jobs/housing balance, and transit focus areas.

TRANSPORTATION CONCEPT (2020)

The 2020 Transportation Concept includes State highway, transit service, system management and travel reduction, goods movement, international border, aviation and nonmotorized components. The State highway and transit components are listed in Table 11, while the other components are discussed in the Concept Rationale section. These components are examined in segments for traffic analysis and other purposes. The segmentation shown is for planning purposes only and is subject to change pending further studies or project-related activities. The State highway component is comprised of the facility type and the number of lanes for 2020, the Average Daily Traffic (ADT) for 2020, the peak hour Volume to Capacity (V/C) Ratio for 2020, the peak hour Operating Level of Service (LOS) for 2020, and the Transportation Concept LOS for 2020. The 2020 traffic projections for Interstate 15 (I-15) are based on Caltrans traffic projections and the San Diego Association of Government's (SANDAG) Series 8

regional population and employment forecasts and assume completion of the future regional transportation system. The 2020 traffic projections are subject to change based on periodic traffic forecasting model adjustments and ongoing supplemental transportation studies.

The 2020 peak hour Operating LOS includes all proposed transit service and State highway improvements, which includes the expansion and greater utilization of the existing arterial street network. Even with the inclusion of the proposed highway, transit and arterial improvements, and an increase in person trips, the 2020 peak hour Operating LOS for I-15 for segment 5, segment 8-11, segment 13 and segments 15-16 will be deficient.

The 2020 Transportation Concept LOS is based on the SANDAG 1998 Congestion Management Program (CMP). The CMP minimum standard of LOS 'E' is the 2020 Transportation Concept LOS for mainlane segments 1 through 7 and segments 13-16. The 2020 Transportation Concept LOS is F₀ for segments 8-12 and LOS concept D for segments 15-16. The 2020 Transportation Concept LOS for the Managed Lanes is LOS 'D', which does not take into account the inclusion of single occupancy vehicles (SOV's).

The Transportation Concept for I-15 is consistent with information included in the *Caltrans California Transportation Plan* (August 1998) goals strategy, which describes I-15 as an established major multimodal transportation corridor. The Concept for I-15 is also consistent with the *2000 SANDAG RTP* and the General Plan Circulation Elements from the County of San Diego and the cities of San Diego, Poway and Escondido. This Transportation Concept Report is also consistent with the MTDB *I-15 Corridor Major Investment Study* (MIS), which was finished in December 1998. The Transit Alternative (TA) acronym shown in Table 11 generically represents a number of transit and HOV alternatives currently considered as part of this MIS study.

**TABLE 11
2020 TRANSPORTATION CONCEPT**

Segment/ Post Mile	Location	# Lanes/ Facility Type	Main Lane ADT*	Main Lane LOS**	Main Lane Concept LOS***	ML ADT*	ML LOS** (NB PM Hr.)	ML LOS** (SB AM Hr.)	ML Concept LOS	HOV Lanes ADT*	HOV Lanes LOS**	HOV Lanes Concept LOS
1 R0.0-2.2	I-5 to SR-94	8F + IC Revision + TA	115,000	D	E							
2 2.2-R3.4	SR-94 to I-805	8F + HOV/TA	111,000	E	E					27,000	C-D	D
3 R3.4-R5.6	I-805 to Adams Ave	8F + HOV/TA	133,000	E	E					28,000	C-D	D
4 5.6-R6.1	Adams Ave to I-8	8F + HOV/TA	131,000	C	E					25,000	C-D	D
5 R6.1-R9.3	I-8 to SR-274	8F + HOV/TA	200,000	F ₀	E					39,000	C-D	D
6 R9.3-R10.6	SR-274 to SR-52	8F + HOV/TA	150,000	D	E					34,000	C-D	D
7 R10.6-M12.1	SR-52 to SR-163	8F + HOV/TA	153,000	E	E					35,000	C-D	D
8 M12.1-M15.9	SR-163 to Mira Mesa Blvd	10F + 4ML/BRT	281,000	F ₁	F ₀	77,000*****	D	D	D			
9 M15.9-M18.2	Mira Mesa Blvd to Poway Rd	10F + 4ML/BRT	272,000	F ₂	F ₀	74,000*****	D	D	D			
10 M18.2-M19.4	Poway Rd to SR-56	8F + 4ML/BRT	214,000	F ₂	F ₀	74,000*****	D	D	D			
11 M19.4-M26.0	SR-56 to Pomerado Rd	8F + 4ML/BRT	215,000	F ₁	F ₀	66,000*****	C-D	C-D	D			
12 M26.0-M27.6	Pomerado Rd to Centre City Pkwy	8F + 4ML/BRT + WB	240,000	F ₀	F ₀	60,000*****	C-D	C-D	D			
13 M27.6-R31.5	Centre City Pkwy to SR-78	8F + 4ML/BRT****	203,000	F ₀	E	51,000*****	C-D	C-D	D			
14 R31.5-R36.6	SR-78 to U/R Limits	8F	145,000	E	E							
15 R36.6-R46.5	U/R Limits to SR-76	8F	137,000	E	D							
16 R46.5-R54.3	SR-76 to Riverside Co. Line	8F	149,000	E	D							

8F, 10F = (8, 10) Lane Freeway WB = Widen Lake Hodges Bridge LOS = Level of Service TA = Transit Alternative
HOV = High Occupancy Vehicle lanes ADT = Average Daily Trip BRT = Bus Rapid Transit (See Transit Component p. 34 for description)

IC = I-15/SR-94 Interchange Revisions

ML = Managed Lanes; When operable will be (3+1) lanes in the peak direction (See Highway Component p. 31 for description)

* ADT's are derived from the SANDAG Series 8 2015 Traffic Forecast projected out to the year 2020.

** Level of Service (LOS) is based on planning estimates only and is subject to change. These LOS's are not to be used for design purposes.

*** Based on SANDAG CMP LOS minimum standards; Concept LOS for Managed Lanes & HOV lanes are based on Caltrans District 11 planning standards.

**** Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

*****Managed Lane ADT's does not include Single Occupancy Vehicles (SOV's).

The concept of managed lanes is to operate a "freeway within a freeway" between the I-15 / SR-163 Interchange at Miramar and SR-78 in Escondido, that can be adjusted on demand to increase the overall travel in the corridor 24 hours a day. The proposal is to develop the lanes with the latest technologies that would maintain proper flow rates, sense problems, make adjustments at necessary locations and keep the travelers informed of their choices. The system would allow changing the lane configuration prior to the beginning of the daily commute period. The goal is to change the lane configuration in a 30 - 45-minute time frame with moveable concrete barrier machines. The concept is to allow entry and exit points every two- to three-mile intervals into the managed lanes. In our view, preference should continue to be given to High Occupancy Vehicles (HOV), such as carpool and buses. However, just as there is unused capacity on the current HOV lanes on I-15, the same will be true in the coming years. This proposal offers people who drive alone entrance into the lanes for a fee. Before the managed lanes reach capacity, sensors would close off Single Occupant Vehicles (SOV) access by relaying pre-programmed information to changeable message signs. In the future, the message could be relayed directly into approaching vehicles.

POST-2020 ULTIMATE TRANSPORTATION CORRIDOR

The post-2020 Ultimate Transportation Corridor (UTC) describes the long-term (beyond the 20-year planning period) right of way requirements for a particular segment. The intent is to take advantage of or develop opportunities for long term right of way acquisition and to work with local and regional agencies to implement corridor preservation measures.

The UTC proposes the number of lanes and facility type or the transit alternative that may be needed to accommodate traffic growth beyond the year 2020. The UTC number of lanes and facility types are based on Caltrans planning studies and the transit alternative is based on studies conducted by consultants, the Metropolitan Transit Development Board (MTDB) and SANDAG. Transit alternatives and high occupancy vehicle lanes are the most desired alternatives for post-2020 options that are available to Caltrans.

CONCEPT RATIONALE

An intermodal approach is necessary to provide for the projected increased person-trips in the I-15 corridor. This approach utilizes a wide variety of transportation improvement components to help achieve the 2020 Transportation Concept LOS.

Highway Component

The highway component for the I-15 mainlanes includes upgrading segment 1 (I-5 to SR-94) and segment 2 (SR-94 to I-805) from a six-lane freeway to an eight-lane freeway and revising interchanges from I-15/SR-94. For the portions of Segments 3 and 4 from 0.6 miles north of I-805 to 0.3 miles south of I-8, the SR-15/40th Street freeway project proposes to construct an eight lane freeway with a sufficiently wide median to accommodate future HOV lanes, exclusive bus lanes, or light rail transit and is scheduled for completion in the fall of 2000. As mitigation for the 40th Street project they have proposed Teralta Park, which will cover an entire city block over and above Interstate 15. Details of the proposal consists of two half-court basketball courts, a kids and tots play area with equipment, and an open lawn play area, amongst the vegetation and trees that will be provided along the walkways around the park. Heavy landscaping and soundwalls will minimize the sight and sounds of the new highway from nearby residences. Also among the 40th Street improvements will be the widening of University Avenue and El Cajon Boulevard for the purpose of livable community improvements for future transit growth. Segments 5 through 7 include the future additions of HOV lanes and a needed study for a transit alternative. Segments 8-13 has the improvement of managed lanes within the next twenty years and a rapid bus system that will work in accordance with the 5 transit stations along the managed lanes. The remaining additional mainlane concept improvement includes widening the Lake Hodges Bridge only in Segment 12. For the latter part of Interstate 15, segments 14-16, there are no planned improvements despite sporadic traffic delays due to the Temecula checkpoint. The federal government provides funding each year to the immigration and Naturalization Service to operate the checkpoints. These traffic checkpoints have been the center of controversy because of their lengthy traffic delays and searches of motorists. Currently legislation has been introduced to move the checkpoints closer to the U.S./Mexico border and had yet to produce any results.

Interstate 15 just 10 years ago carried 150,000 average daily traffic (ADT) and is presently approximated at 288,000 vehicles with commutes ranging from 30 to 45 minutes. The future estimates for I-15 is expected to approach 380,000 average daily traffic by the year 2015, with commuting delays reaching up 80 to 120 minutes if nothing is implemented.

The current I-15 "Express Lanes" opened in October of 1988, extend approximately 8 miles with no intermediate access points. The existing "Express Lanes" on I-15 from SR-163 to SR-56 is currently two lanes in the peak direction of traffic combined with a value pricing method called "Fastrak", where drivers can buy into the lanes at a price depending on the amount of variable traffic. Fastrak's hours of operation are from 5:45am to 11:00am southbound, and northbound for evening traffic from 1:00pm to 7:00pm. Fastrak is open Monday through Friday and closed weekends and holidays. Major transit projects proposed for the Interstate 15 corridor by the year 2020 includes a new transitway from I-5 through SR-78 (P.M. R0.0- P.M. R31.5) to Escondido. One line has already begun express service along I-15, called the Inland Breeze Route number 980/990 and operates from Downtown San Diego to Rancho Bernardo.

Operational enhancements have been utilized to help ease congestion by improving traffic flow. Auxiliary lanes are a solution for congestion and are relatively inexpensive to construct. Within the next four years, I-15 will have 16 more added/auxiliary lanes between SR-163 and SR-78 at an estimated cost of \$130 million. The operational improvements will also encompass a fully coordinated Transportation Management System linked by a fiber-optic network, which is already partially in place. These TMS improvements include ramp meters, closed circuit television cameras, and changeable message signs.

The first stage for the operational improvements in the year 2000 is planned for Camino Del Norte and Kearny Villa Road. The second stage will consist of the bulk of improvements along the I-15 corridor. This second stage for 2001/2002 includes Citracado Parkway to Valley Parkway and the Carmel Mountain Road offramps along with improvements scheduled for the SR-56/I-15 interchange. Also scheduled for improvements in the second stage of this project is Miramar Way to the Scripps Poway Parkway offramps. The last stage is forecast for the year 2002/2003 and includes lane upgrades from Mercy Road/Scripps Poway Parkway to Ted Williams Parkway. Table 12 below has the future auxiliary lanes that are to be implemented, including the recently built 40th Street project.

TABLE 12
FUTURE AUXILIARY LANES

Location	Direction	Number
Interstate 805 to University Avenue	Northbound	1*
El Cajon Boulevard to Adams Avenue	Northbound	1
Adams Avenue to Interstate 8	Northbound	1
Miramar Way to Pomerado Road	Northbound	1
Carroll Canyon Road to Scripps Poway Parkway	Northbound	1
Mercy Road to Ted Williams Parkway	Northbound	1
SR-56 to Camino Del Norte	Northbound	1
Camino Del Norte to Bernardo Center Drive	Northbound	1
Rancho Bernardo Road to Pomerado Road	Northbound	1
Pomerado Road to Via Rancho Parkway	Northbound	1
9 th Avenue to Valley Parkway	Northbound	1
Interstate 805 to University Avenue	Southbound	1
El Cajon Boulevard to Adams Avenue	Southbound	1
Adams Avenue to Interstate 8	Southbound	1*
Miramar Way to Miramar Road	Southbound	1
Miramar Road to Carroll Canyon Road	Southbound	1
Carroll Canyon Road to Mira Mesa Boulevard	Southbound	1
Mercy Road to Rancho Penasquitos Boulevard	Southbound	1
Rancho Penasquitos Boulevard to SR-56	Southbound	1
SR-56 to Carmel Mountain Road	Southbound	1
Green Valley Creek to Via Rancho Parkway	Southbound	1
Citracado Parkway to 9 th Avenue	Southbound	1

* Denotes an additional truck climbing lane at a 6.3% grade.

Caltrans has recently broken ground for the completion of the SR-56 gap closure. The freeway has been scheduled for completion in the year 2003. When the connection between I-5 and I-15 is finished, the freeway has been estimated to ease traffic by up to 10 percent south of SR-56. The new SR-56/I-15 interchange will roughly cost about \$40 million. Other such complementary freeway improvements would include traffic metering lights and various safety measures.

The Managed Lane concept is now being developed between SR-163 and SR-78 on the I-15 corridor to assure the maximum number of person trips possible during peak period commute hours. The concept of managed lanes is to operate a "freeway within a freeway" between the I-15/SR-163 Interchange and SR-78 in Escondido, that can be adjusted to meet demand and increase the overall capacity. The proposal is to develop the lanes with the latest technologies that would maintain proper flow rates, sense problems, make adjustments at necessary locations and keep the travelers informed of their choices. The managed lane proposal consists of lanes added in the freeway median that may flow in either direction, similar to the one operating on the San Diego-Coronado Bay Bridge. Lane configurations would vary depending on the number of lanes built. For example, with four lanes, it could have three lanes in the peak direction

and one lane in the reverse peak direction. Managed lanes could also be configured to handle incidents or special events.

Caltrans and MTDB have proposed transit stations and park-and-ride lots that connect to the Managed Lanes in the center of I-15 via bridges known as “direct access ramps.” These would branch from the median lanes and cross the freeway to a station. The 5 proposed transit stations are being considered in the following places: Mira Mesa, Carmel Mountain Ranch, Rancho Bernardo, and Escondido. Bus Rapid Transit (BRT), in conjunction with the managed lane concept, would still give priority to high occupancy vehicles and express bus service.

Fixed concrete barriers would also separate the managed lanes from the main lanes, with access openings at two- to three-mile intervals along the corridor. The system would allow changing the lane configuration prior to the beginning of the daily commute period. In response to emergencies, the goal is to change the lane configuration in a 30–45 minute time frame with moveable concrete barrier machines. The concept is to allow entrances and exits that are easily accessible, to and from the freeway, into the managed lanes at a number of locations along the 20-mile long system. Preference will be given to High Occupancy Vehicles (HOV), such as carpool and buses. This proposal offers people who drive alone access into the lanes. Before the managed lanes reach capacity, sensors would close off Single Occupant Vehicles (SOV) access by relaying pre-programmed information to changeable message signs. In the future, the message could be relayed directly into approaching vehicles.

Managed lanes are currently scheduled in three different stages. The first stage will consist of building 4 Managed Lanes along I-15 from SR-56 to Citracado Parkway. Another stage includes a 2+2 fixed barrier managed lanes from approximately Citracado Parkway to SR-78. The final stage will consist of converting the current two lane HOV from SR-163 to SR-56 into a 4 Managed Lane facility. Seen below in Table 13 are the costs, funding, and scheduling of the operational improvements and Managed Lanes project.

TABLE 13					
COSTS, FUNDING, AND CONSTRUCTION SCHEDULE					
<u>Operational Improvements</u>	<u>Costs (Capital & Support)</u> (Millions \$)			<u>Funding Identified</u> (Million \$)	<u>Construction Schedule</u> (Year)
SR-52 to SR-78					
Total	112			53	1999-2004
<u>Managed Lanes</u> (by segment)	<u>Freeway Elements</u>	<u>Transit Elements</u>	Total	<u>Funding Identified</u> (Million \$)	<u>Construction Year</u> (Year)
Centre City Parkway to SR-78	120	20	140	0	?
SR-56 to Centre City Parkway	185	35	220	150	2003-2004
SR-163 to SR-56	150	25	175	0	?
Total	455	80	535	150	

Transit Component

Major Investment Study (MIS) (November 19, 1998)--The transit component of this Transportation Concept Report includes the selection of a transit alternative based on the *MTDB I-15 Corridor MIS*. The purpose of this consultant prepared study is fourfold: (1) to define and compare alternative types of major transit improvements for the I-15 corridor from I-5 to the Escondido Transit Center. Long term rail studies and bus options will be considered, (2) to prepare an Evaluation Report summarizing the results of this analysis and documenting all the relevant technical information used in the selection of the recommended alternative; (3) to analyze land use factors that have an impact on the ability to serve this corridor with public transit, and develop design treatments that could help improve access to the preferred alternative, and (4) to prepare a financing plan which will support the preferred alternative.

MTDB's MIS has evaluated the use of rail alternatives along I-15, which has been broken down into three segments. All three rail segments have been identified as having too low a population density with huge capital costs because of grade separations. The MIS states that a short-range plan should be developed and that the rail alternative should still be retained as a possible long-term goal. MTDB's MIS has also proposed a future light rail trolley extension in Mira Mesa. The extension line would start at the Mira Mesa Boulevard/I-15 intersection and continue along Carroll Canyon Road until it reaches its final destination at University Towne Center (UTC). This LRT extension has no known future construction date; instead it has been proposed as a feasibility study.

The Bus Rapid Transit (BRT), in conjunction with the managed lanes concept, would still give priority to high occupancy vehicles and express bus service. Direct access drop ramps will connect the managed lanes to transit centers,

limiting the number of bus stations and out-of-direction time that it will take to transfer people. The MIS has identified some corridor transit stations and park-and-ride lots at Mira Mesa, Carmel Mountain Ranch, Rancho Bernardo, and Escondido.

Programmed and additional recommendations made by the MIS are auxiliary lanes and the managed lane concept. Auxiliary lanes are meant as a temporary complement to managed lanes in order to help facilitate the reduction in congestion along the route. The use of auxiliary lanes will ease the weaving in and out of traffic to enter and exit the freeway at an efficient level. Managed lanes is considered a freeway within a freeway by optimizing the number of lanes in the peak direction of traffic and gives priority to high occupancy vehicles and bus transit using the corridor. The managed lanes will only allow 3 lanes in the peak direction of traffic and one lane in the reverse peak.

The California High Speed Rail Authority--The authority has identified the I-15 corridor as the preferred alignment for the Los Angeles-San Diego segment via Riverside County.

The California High Speed Rail Authority has given the okay to continue their \$25 billion, 700 mile rail system to link Northern and Southern California. The High Speed Rail Authority hopes to finish the 220 M.P.H. bullet train networks by 2016. This express train-ride has been estimated to take 3.5 hours from San Diego to San Francisco and 2.5 hours from Los Angeles to San Francisco. With subsidization from the state and federal governments, train tickets would cost significantly less than airfare. The authority has also assessed that the system would carry more than 42 million riders and generate nearly \$900 million a year in revenue, including more than \$300 million in profits.

As of the winter of 2000, the High Speed Rail Authority recommends proceeding to the environmental impact report phase. The initial environmental clearance phase will proceed with \$25 million over the next two years. If the clearance is deemed viable, an additional \$350 million will be required over the next three to four years in order to reach full environmental clearance and initiate the design phase of the project. The remaining goal would be to engage a private sector partnership to operate and maintain the system.

Traffic Study--The Caltrans *Route 15 Traffic Study - 40th Street Corridor* (June, 1995) and the *State Route 15 Environmental Reevaluation* (August, 1995) both discuss proposed transit improvements in the 40th Street corridor, including an exclusive bus lane and platform station on the exit ramps at the University Avenue and El Cajon Boulevard interchanges to accommodate express bus service. There is also discussion of transit platform stations that are to be constructed at freeway grade level beneath the University Avenue and El Cajon Boulevard overcrossings, which could serve express bus, light rail transit, or an HOV lane facility in the future.

Short Range Transportation Plan (S RTP)--Regarding specific bus transit service improvements in the I-15 corridor, the *MTDB Short Range Transit Plan for FY1999-2003* includes a number of service expansions and additional new services. One option is to provide bus service in the Kearny Mesa and the Mid-City Euclid Avenue Trolley Station in conjunction with the year 2000 opening of the I-15 freeway, which will have freeway ramp bus stops at El Cajon Boulevard and University Avenue. Another option is to study high-speed rail along the I-15 corridor as a part of the MIS. A review of routes 40 and 70 to possibly serve the I-15 corridor and El Cajon Boulevard/ University Avenue freeway ramp stops when I-15 opens should be considered. Improving peak-period access to the Kearny Mesa area, by implementing new express bus services from North University City, University City, and the I-15 corridor is also recommended. Additional proposals include splitting Route 20 into two routes, using Mira Mesa Transit Center as the terminus locations, and marketing Route 990 I-15 express service in conjunction with SANDAG's I-15 Congestion Pricing Project.

Bus Study--Other studies include the *I-15 Congestion Pricing Project Monitoring And Evaluation Services: Phase I Bus Study (April 22, 1998)*, which was prepared by the Department of Civil and Environmental Engineering at San Diego State University. The findings have been broken down into two categories as follows: (1) Overall bus ridership along the I-15 corridor appears to be steadily increasing, except for the buses that utilize the Express Lanes who have seen a slight fall in ridership and (2) Overall bus ridership in San Diego County has increased steadily.

System Management and Travel Reduction Component

The District 11 traffic operation actions focus on three key strategies: (1) completion of the Integrated Traffic Management System (ITMS); (2) implementation of the Managed Lanes Concept on I-15, and; (3) the addition of auxiliary lanes at 27 locations throughout the District. A major element of the I-15 2020 concept is an improved utilization of the existing highway system.

Reports and Studies--SANDAG's *Mid-County Transportation Plan* (March, 1995) is a comprehensive analysis of planned and alternative arterial circulation networks for the area from Rancho Penasquitos to Escondido and from the Pacific Ocean to the City of Poway. A portion of the I-15 corridor falls within this study area. Specifically, the following improvements recommended in this study may help relieve congestion on I-15: Construct an expressway (six lanes) along the Camino Ruiz - Melrose Drive alignment from SR-56 to SR-78; upgrade SA 680 between Black Mountain Road and Camino Ruiz from a four lane major arterial to a six lane prime arterial; upgrade Espola Road from a four lane collector to a four lane major street; and improve Black Mountain Road between SR-56 and Del Mar Heights from a four lane major arterial to a six lane prime arterial. The Mid-County Plan also states that the proposed construction of

Camino Ruiz across Penasquitos Canyon is a vital component of the circulation element and will provide congestion relief to the region.

SANDAG has been coordinating the development of the *1999 Regional Arterial System (RAS) Project Priority List*, which includes unfunded/underfunded candidate projects that could compete for future discretionary transportation funding allocations. An additional study related to arterial street improvements is the *SANDAG Traffic Signal Optimization Program* (April 1994). This program was developed to enhance inter-jurisdictional coordination, to provide detailed guidelines for the implementation of a countywide traffic management system, and to identify a conceptual plan for future implementation of Intelligent Vehicle Highway System (IVHS) technologies. The proposed signal system improvements are expected to significantly reduce vehicle emissions and traffic congestion.

In addition to the aforementioned Traffic Signal Optimization Program, air quality improvements will be achieved primarily by the implementation of Transportation Control Measures (TCM's). The goal of TCM's for the Air Quality Plan report developed by the SANDAG Regional Transportation Plan (RTP) dated April 2000 is to reduce traffic congestion and motor vehicle emissions in the San Diego air basin in order to meet the requirements of the state's Congestion Management Act, the California Clean Air Act of 1988, and the federal Clean Air Act Amendment of 1990. The components of this report are broken down into three differing components. The first component includes alternative transportation mode capacity expansion such as transit expansion, HOV lanes, vanpool programs, park and ride facilities, and bicycling facilities. Our second component addresses transportation system management (TSM), which includes traffic flow improvements at the Transportation Management Center (TMC) such as call boxes, changeable message signs (CMS), closed-circuit television (CCTV), highway advisory radio (HAS), ramp meters, real-time incident detection, CHP dispatch, and cellular 911 call takers. The last component is in regards to indirect source control facilities in the *Air Quality/Land Use Guidelines* produced by the APCD. TCM improvements are intended to reduce travel demand during peak period traffic hours. Additional TCM components include staggered work hours, parking management, developer and employer-based incentives, and implementation of ordinances.

Another system management component is the development of the Traffic Operation Plan (TOPS) for Southern California. The ultimate challenge for TOPS is to address all modes, local streets and arterials, and address the demand side of transportation inclusively. The investment into TOPS would, in essence, complement the current system in place. TOPS is developing and refining the preliminary project list in each Caltrans district. The final plan should be completed over the next year and brought before the Legislature no later than January 2001. Table 14 below shows the representative Traffic Operations Strategies (TOPS) that the State of California is looking at.

Table 14
Representative TOPS Investments

Level 1		Level 2	Level 3
Intelligent Infrastructure	Physical Operational Improvements	HOV Network Gaps	Freeway Interchange Modifications
Changeable Message Signs	Alignment Upgrades	HOV Connectors	Freeway Connectors
Closed-Circuit Televisions	Auxiliary Lanes	HOV Drop Ramps	Freeway Connector Metering
Fiber Optics	Intersection Upgrades	HOV/ Managed Lanes	
Highway Advisory Radios	Lane/Shoulder Widening	Other	
Metering and Metering Control	Passing Lanes		
Roadway Weather Information System	Ramp Modifications		
Transportation Management Center Upgrades	Other		
Traffic Monitoring Stations			
Communication Links			
Signal Upgrades			

The District 11 traffic operation actions focus on three key strategies: 1) completion of the Integrated Traffic Management System; 2) implementation of the reversible Managed Lanes Concept on I-15; and 3) the addition of auxiliary lanes at 27 locations throughout the District. There are various amounts of improvements for I-15 listed in the Traffic Operations Strategies – Five Year Plan List of Projects.

Arterial Streets-- One of the many components of this improved utilization is the expansion of existing and proposed arterial street network within the corridor. These arterial improvements are expected to substantially increase mobility and reduce peak period demands on the freeway. These enhancements can provide a route for short intraregional trips where existing arterials are inadequate or not present and act as an alternative route for some regional trips. Capacity of existing arterials within the corridor are affected by physical inadequacies, access conflicts, numerous traffic signals, and general traffic congestion. Realignment and/or widening, correcting physical inadequacies, minimizing side friction, and improving the traffic flows of arterials within the corridor can increase corridor capacity. Improvements towards these ends include preferential signal treatment, limitation and separation of left-turn movements, limited driveway and other access controls, and surface street HOV lanes for ridesharing and transit. Since a large portion of the North County is seeing an increase of housing and population alike, arterial streets are being looked at for major improvements. One of these arterials that needs improvement is Pankey Road, which connects to SR-76 near I-15. An estimated cost of 6 million dollars will improve Pankey Road, giving access to SR-76 by converting a four lane to a six lane conventional road.

Ramp Meters and HOV Bypass Lanes--Additional TSM improvements are expected to optimize traffic flow on existing transportation systems within the I-15 corridor. Specifically, ramp meters will be installed in a variety of locations. The TSM Project Priority List provides some guidance regarding future locations for ramp meter installations. Ramp metering is one of Traffic Management's tools to regulate the flow of traffic entering the freeways during the peak traffic hours. HOV bypass lanes will also be provided on appropriate ramps where feasible to encourage high occupancy vehicle use. A current list of ramp meters and HOV bypass lanes can be found in Table 5. Table 15 lists future ramp meter activations.

**TABLE 15
FUTURE RAMP METER ACTIVATIONS**

Southbound	Northbound
University Avenue	University Avenue
El Cajon Boulevard	El Cajon Boulevard
Adams Avenue	Adams Avenue
Miramar Way	Miramar Way
	Fairmount Avenue

Ramp metering increases the capacity of mixed flow lanes and enables traffic to flow at greater speeds. The number of traffic accidents is reduced as well. Freeway congestion is most often caused by a bottleneck, where the freeway demand exceeds the freeway capacity. When the demand exceeds the capacity, congestion creates stop-and-go traffic and ramp metering limits the amount of traffic entering the freeway. On weekdays, the meters operate during the peak traffic periods. The ramp volume as well as the volume on the freeway determines the rate at which cars are allowed onto the freeway. The mainline responsive controllers react to the volumes on the freeway. If the volumes decrease significantly, then the meter will adjust and allow more cars onto the freeway. If the freeway volume is very light, the meters may go to continuous green.

In addition to ramp meters, a system of electronic traffic sensors, changeable message signs, and closed-circuit television cameras have been installed district-wide to monitor traffic flow and respond to congestion in a variety of ways. This strategy attempts to divert highway demand before it reaches the highway system by offering alternatives that will avoid delay.

Additional system and demand management strategies that have the potential to reduce congestion include ridesharing, home or satellite telecommuting, variable work hours, employee transportation allowances, and low-cost parking for car and vanpools.

Park and Ride--Park and Ride facilities will be provided in appropriate locations within the I-15 corridor. The consultant prepared *San Diego Regional Park and Ride Study* (July, 1994) analyzed and evaluated several planned and potential Park and Ride lot locations throughout the I-15 corridor region. Future potential sites in the I-15 corridor include:

- 1) Ruffin Rd/ Gramercy Dr.
- 2) SR-52/ Santo Road
- 3) Relocation of existing I-15/ Mira Mesa lot
- 4) I-15/ Scripps Poway Parkway
- 5) Park Terrace/ Bernardo Center Drive
- 6) I-15/ North County Fair
- 7) S. Centre City Parkway/ Brotherton Road
- 8) Via Rancho Parkway/ Bear Valley Parkway
- 9) I-15/ 9th Avenue
- 10) I-15/ Valley Parkway
- 11) I-15/ El Norte Parkway

Not included in this list is future park-and-ride lots are the managed lanes proposals for new transit centers in Mira Mesa, Rancho Bernardo, Carmel Mountain Ranch, and Escondido.

TCM, TSM and TDM improvements tend to overlap and work synergistically. The total effect of these improvements will improve air quality, will assist in alleviating traffic congestion, and will result in an increased number of person-trips within the I-15 corridor.

Goods Movement Component

The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, additional emphasis is being placed on the movement of goods in an integrated transportation network. It is essential to identify critical elements within major goods movement corridors in order to develop effective strategies for managing, maintaining and improving transportation system connectivity. Goods movement planning incorporates analysis of impacts on noise, air quality, land use, congestion, safety, and can have a significant economic impact on our regional economy.

The Transportation Equity Act for the 21st Century (TEA-21) builds on the initiatives established in ISTEA, authorizing highway, highway safety, transit and other surface transportation programs for the next 6 years. Transportation enhancement activities, therefore, must have a direct relationship – by function, proximity or impact – to the intermodal transportation system. The movement of goods in San Diego involves the systems of rail, ports and shipping, air cargo and trucks.

Caltrans Districts 8 and 11 and the Center for Environmental Research and Technology at UC Riverside have developed the *Intermodal Goods Movement Analysis for the California I-15 Corridor Study*. This research study identifies existing and future deficiencies and makes recommendations related to roadway capacity and air quality improvements. The study includes data collection, TRANPLAN based model development, corridor emissions analysis and inventory, and an analysis of the effects of reformulated diesel fuel on the trucking industry. The study has found that a majority of the trucks using I-15 have out-of-state license plates, have higher valued cargo leaving the state, and have a higher number of empty trucks entering the Los Angeles basin.

Airports--According to SANDAG's Regional Transportation Plan the majority of "heavy" air cargo for the San Diego region is not transported from/to Lindbergh Field, but is trucked in and out of region via the Los Angeles and Ontario airports. Few widebody freighter and passenger aircraft serve San Diego, a trend expected to continue over the near future. However, air cargo at the San Diego International Airport is projected to quadruple to approximately 440,000 tons by 2020 (*SANDAG RTP, April 2000*) and to meet this growth, additional cargo facilities will be a necessity.

The City of San Diego has proposed the redevelopment of Brown Field into an international cargo facility to boost air cargo shipments, which will also have an impact upon I-15 as a goods movement corridor because of the expected projections of aviation demand. Brown Field is forecasted for over 500,000 tons of air cargo by the year 2016 (*SANDAG RTP, April 2000*) if converted to receive air cargo.

Trucks--The *Intermodal Goods Movement Analysis for the California I-15 Corridor Study* has found that approximately 50-80% of trucks using the I-15 corridor have out-of-state (non-California) license plates, approximately 1/3 of the trucks using I-15 are headed towards the Los Angeles basin, and more than 1/3 of the trucks entering the State of California are empty trucks.

California ranks second in the nation in ton-miles of truck shipments and fifth in the U.S. with cargo valued at \$590.5 billion (*SANDAG RTP, April 2000*), which represents the dominant freight mode in San Diego. Trucking rates are likely higher for the San Diego region due to the limited freight rail and limited air cargo service within the region.

With the implementation of the North American Free Trade Agreement (NAFTA) in 1992, increased commercial vehicle traffic has impacted the border region's transportation network along with I-15 and I-5. A few of the future projects that will have an impact on I-15 will be the proposed port of entries in Otay Mesa East and Jacumba along with the construction of SR-11, SR-905, and SR-125 South.

Rail--Rail cargo tonnage for automobiles, soda ash, and lumber should grow by nearly 50 percent by 2020 to approximately 1.4 million tons annually (*SANDAG RTP, April 2000*). To meet this demand after passage of the NAFTA agreement, recent studies have proposed the reopening of the San Diego & Arizona Eastern Railway. The opening of this currently inactive railway would eliminate 20,000 trucks annually from the highways after ten years of operation. SANDAG's 1999 market study has shown that better development between the modes such as truck-to-rail and ship-to-rail transfers are needed in order for container goods movement to play a more important role, which in turn indirectly effects the usage of I-15 as a major corridor for goods movement.

Seaports--There are currently two terminals that represent the San Diego region. The first is the Tenth Avenue Marine terminal and the second being the National City terminal. The Port of San Diego is ranked fourth within the state of California behind Long Beach, Los Angeles, and Oakland. Cargo that has been coming through the Port of San Diego has not matched the growth of overall U.S. trade and has also not maintained its share of West Coast liner trade. The goals for the Port of San Diego is to increase the amount of cargo they handle from 1.3 million tons in 1998 to 4.5 million tons by the year 2020. The expected growth by the year 2020 isn't expected to strain either of the marine terminals in San Diego due to their current underutilization. As of October of 1999, Maersk Incorporated has contracted with the Port of LA to build a 484-acre container terminal that will be the largest in the US. These improvements will have some indirect effects for the I-15 corridor.

International Border Component

The total population for the California/Mexico border region is approximately 5 million and is forecasted to grow to over 8 million by the year 2020 (*U.S./Mexico Border Activities*; Caltrans District-11; March 1999). With the passage of the North American Free Trade Agreement (NAFTA) the San Diego/ Mexico border region has seen steady increases in the amount of cross border traffic and is in dire need for expansion to accommodate this foreseeable growth. In accordance to the District 11 System Management Plan (June 1996), I-15 is considered to be one of several State routes in the region impacted by NAFTA and is a part of the International Border Trade Corridor (IBTC). The North American Free Trade Agreement Network (NAFTA NET) is a transportation network, which links the Ports-of-Entry (POEs) and the international border region to the existing transportation system. The overall goals of NAFTA NET include facilitating and increasing trade of goods and services, ensuring a safe cross border trucking industry and improving the multimodal transportation network leading to the major international border crossings.

The North American Free Trade Agreement (NAFTA) in 1992, increased numbers of freight movement have impacted the border region's transportation network along with and I-5. Within the last three years alone, NAFTA's export

growth is estimated at \$34 billion and help support nearly 476,000 new jobs in California (California Trade and Commerce Agency).

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 was recently reauthorized for the next six years under the Transportation Equity Act for the 21st Century (TEA-21). ISTEA requires studying the advisability of establishing a discretionary International border crossing program and the development of a multimodal assessment of existing and emerging international trade corridors within Canada, Mexico and the United States. The reauthorization has complemented initiatives from the original act and has improved in areas to address safety, economic competitiveness and international trade. A total of \$700 million for the reauthorization will be spent through the 2003 fiscal year on coordinated planning, design and construction of corridors of national significance, economic growth, and international & interregional trade (*U.S./Mexico Border Activities*; Caltrans District-11; March 1999).

There are six existing POEs, of which reside in San Ysidro, Otay Mesa, Tecate, Calexico, Calexico East, and Andrade. International trade across the California/Mexico border was worth an estimated \$14 billion dollars (*U.S./Mexico Border Activities*; Caltrans District-11; March 1999). The bulk of goods traded at the border reside at the San Ysidro crossing, where as Otay Mesa exchanges the majority of the commercial goods. There are several additional proposed short-term and long-term improvements to border area transportation systems that will improve, and provide access to, the existing and future international Port-of-Entry facilities. These future proposals would include a POE addition in the Otay Mesa East region and a new facility in Jacumba. Included with the proposed POEs would be the infrastructure to provide access and, therefore, of the highest priority the need to build an extension for highway 905 and the reopening of the San Diego & Arizona Eastern Railway's (SD&AE) Desert Line. These border highway improvements in San Diego and Imperial counties amount to \$1 billion dollars and will help tie border crossings to existing interstate highways.

Aviation Component

Although the Aviation Component is not as critical to the 2020 Transportation Concept as the other modal options, ground access issues to and from airport facilities could have an impact on the state highway system. In the I-15 corridor, Montgomery Field is a public general aviation airport located approximately 1.5 miles west of I-15 with airport access from I-15 via Aero Drive. Adjacent to I-15 in the vicinity of Miramar Road is one of the four military airports in the region, Marine Corps Air Station (MCAS) Miramar.

In 1993, Congress approved a base closure and realignment plan, which replaced the naval operations at Miramar with Marine Corps fixed wing and helicopter air operations. Formerly known as Naval Air Station (NAS) Miramar,

the Marine Corps Air Station (MCAS) Miramar, is the home to 10 rotary-winged squadrons and 11 fixed-winged squadrons. A majority of the operations will take place on the base itself as opposed to before, where the Navy tended to have flight patterns directly over residential areas. A newer flight pattern has been developed to reduce the noise impact upon the local residents, which consist of landing and taking off at higher altitudes.

Nonmotorized Component

The Nonmotorized Component includes continued utilization of the existing Regional Bikeway System, the Bus Bicycle Rack Program and the Bicycle Locker program at Park and Ride lots. Within the I-15 corridor, bicycle travel is primarily on parallel arterials and frontage roads due to the fact that they are better suited to provide a safer bicycling environment. One of the few exceptions is an existing bike path along the East Side of I-15 connecting Mira Mesa Boulevard and Poway Road. The other existing designated bike path exists along the West Side of I-15 leading North from Qualcomm Stadium and terminating along Murphy Canyon Road. Additional future bicycle facilities are planned for the surface streets within the I-15 corridor. The Ward Canyon Bicycle Path is one of these additional facilities located from Adams Avenue to South Camino Del Rio.

One of the most recent improved developments along the Interstate 15 corridor is across the Lake Hodges Bridge. The proposed project will connect the San Dieguito River Park's Coast to Crest Trail on the north side of Lake Hodges with trails on the south side of the lake. This bicycle/pedestrian bridge is located on the West Side of I-15 with construction expected to begin in the summer of 2001. With the project costing in excess of \$3 million dollars, the crossing will facilitate bicycle commuting between Escondido and Rancho Bernardo.

Environmental Component

A variety of habitat types exist along the I-15 Corridor ranging from high quality undisturbed areas to low quality disturbed areas. Open space areas located along this route have a wide variety of vegetation consisting primarily of upland and wetland communities. In some areas along the route, numerous sensitive plant species may be found including San Diego mesa mint (*Pogogyne abramsii*), San Diego ambrosia (*Ambrosia pumila*), California adolphia (*Adolphia californica*), and San Diego barrel cactus (*Ferocactus viridescens*). Several sensitive animal species have the potential to be found including the Quino checkerspot butterfly (*Euphydryas editha quino*), and coastal California gnatcatcher (*Polioptila californica californica*), which occurs primarily in coastal sage scrub habitat. Vernal pools may be found at localized areas surrounding the intersection of Routes 15 and 163, some of which may have the potential to contain San Diego fairy shrimp (*Branchinecta sandiegoensis*).

Several major waterways exist along Interstate 15 including the San Diego River, Los Penasquitos Canyon Creek, Lake Hodges, and San Luis Rey River. In addition, numerous tributaries cross Interstate 15 throughout San Diego County. These waterways have biological and recreational importance to the area; thus, coordination with resource agencies may be necessary during project mitigation and development.

Along the route there are many sites which have cultural and historic value including Sikes Adobe, the Ferrara Winery, and numerous historic communities in Escondido. All historic properties within the proposed project boundaries must be determined and their historic significance should be evaluated.

Potential exists for sites of paleontologic importance to occur along the route. Within the Coastal Plain the I-15 corridor contains two geologic formations with high potential for significant paleontological resources, they are the Friars Formation and San Diego Formation. Also located along the corridor is the Linda Vista Formation, where a moderately sensitive formation can be found. The southern two-thirds of the I-15 corridor crosses the San Diego Coastal Plain with its Cenozoic-aged sedimentary formations deposited under marine and/or non-marine conditions. The northern third of the corridor crosses into the Mesozoic-aged foothills of the Peninsular Ranges with its nonfossiliferous metamorphic and plutonic rock formations.

There is no hazardous waste involvement anticipated for projects along the corridor. Buildings on residential and/or residential properties may have hazardous waste issues that must be evaluated if the buildings will be removed by a project. These issues would include asbestos and lead based paint. There is potential to find aerially deposited lead along the corridor, however its impacts would be minimal if any.

Communities often have the potential to be disrupted by Freeway Projects. With Interstate 15 traveling through the entire county from north to south a wide variety of community impacts are possible. With so many diverse groups potentially being affected, Community Impact Analysis is an integral part of the planning process.

Along the corridor there are many sensitive noise receptor sites including numerous golf courses, parks, and residences. Residences along the route vary from dense high occupancy structures to single family dwellings, all of which should be evaluated for noise impacts. Changes to the existing freeway system could increase noise levels at adjacent sensitive receptors by creating new lanes closer to the receptor or by allowing faster traffic speeds.

Tourism Component

The California Division of Tourism estimates that recreational activities and the travel industry generates \$55.2 billion dollars per year and sustains 700,000 jobs statewide, which makes California first in the nation for visitors and earnings. California drew over 250 million person trips in 1998, of which San Diego received over 30 million person trips. Of the most attractive places to see in San Diego, Sea World in Mission Bay, Old Town, and Balboa Park are the major lures. The numbers for Sea World totaled over 3.7 million visitors, Old Town over 7.1 million visitors, and Balboa Park over 14 million visitors in 1998. The Gaslamp Quarter National Historic District in downtown San Diego also has its fair share of visitors along with the Del Mar Fairgrounds. Additional recreational activities that have attracted visitors are ocean and beach activities, state parks, open space canyon reserves, and golf courses.

There are specific traffic generators along Interstate 15 that receives tourist traffic. Interstate 15 is the only major north to south freeway serving the inland portion of San Diego County and transportation planning plays an important role in regional traffic concerns. A few critical locations, for instance, are Qualcomm Stadium in Mission Valley, North County Fair Mall in Escondido, Lake Hodges in Rancho Bernardo, and the San Diego Wild Animal Park near Escondido. All locations have heavily congested traffic during differing parts of the year depending on the season.

AIR QUALITY

The federal Clean Air Act (CAA) forms the basis for the national air pollution control effort. A basic element of the CAA is the National Ambient Air Quality Standards (NAAQS), which require that certain pollutants do not exceed specified levels. The threshold for each pollutant ensures protection for sensitive groups of the population. California has adopted state air quality standards that are more protective than the NAAQS. Areas with levels that exceed the standard for specified pollutants are designated as "non-attainment areas."

The federal CAA requires each state containing non-attainment areas to submit a State Implementation Plan (SIP) to the federal Environmental Protection Agency (EPA), specifying measures to be taken to attain the NAAQS by a specified attainment deadline. The San Diego County Air Pollution Control District (APCD) prepares the San Diego portion of the California SIP.

The 1982 SIP anticipated attaining federal ozone and carbon monoxide standards by 1987. However, these standards were not attained at that time. A lack of congressional action to reauthorize the federal CAA served as the impetus for the California Legislature to address the state's continuing effort to improve air quality. In 1988, the California Clean Air Act (CCAA) was enacted

requiring the APCD to prepare a revised Regional Air Quality Strategy (RAQS) for achieving the state and federal air quality standards.

Interstate 15 is located in the San Diego Air Basin. Progress has been made in the San Diego Air Basin in attaining federal and state air quality standards. Federal and state standards have been met for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide (CO), and federal standards are being met for inhalable particulates labeled as PM10. State standards for PM10 have not been met and the possible addition of a PM2.5 standard may change the Air Basin's federal status as it relates to inhalable particulates.

Currently, the San Diego Air Basin is classified as a "serious" ozone non-attainment area under both the state and federal Clean Air Acts. The non-attainment classification, based on the amount of pollutant above the one hour standard, determines the minimum state and federal control requirements and the federal attainment deadline for the San Diego Region. The current federal one-hour standard for ozone may soon be altered to an eight hour standard. If this occurs there should be no change in the Air Basin's ozone classification.

Pollution transported in 1998, from Los Angeles region, the smoggiest area in the nation, prevents the San Diego region from having the three consecutive clean years required to attain the standard by the 1999-attainment date. The APCD intends to request an extension in the attainment date to the year 2000 from the US EPA. This extension is allowable on the condition that no violations of the federal one-hour ozone standard occurred in 1999. The APCD could request extensions each year there is no violation until ozone attainment occurs.

INTELLIGENT TRANSPORTATION SYSTEM

New methodologies can assist in providing better management of future transportation systems. Advanced technology research is one tool that can be used to enhance management of the transportation system. Under ISTEA, the Intelligent Vehicle Highway System (IVHS) Program identified four transportation corridors in the nation be identified in order to showcase coordinated intelligent transportation system elements. Congress established the ITS Corridors Program to: (1) provide multiyear funding for showcasing ITS applications and benefits, (2) establish national ITS test beds, (3) advance ITS strategic planning, (4) leverage federal aid and other funding sources, (5) expose the public to ITS potentials, and (6) evaluate ITS technologies.

One of the priority corridors identified is the Southern California Intelligent Transportation System (ITS) Priority Corridor. This corridor lies within the major urbanized and adjacent non-urbanized areas of Ventura, Los Angeles, San Bernardino, Riverside and San Diego Counties and all of Orange County. In San Diego, I-15 is included as part of the corridor. ITS activities in the San Diego region includes innovative use of the existing solar powered freeway call box

infrastructure, the development of a multifunctional/multimodal Transportation Management Center (TMC in Kearny Mesa), the provision of automated traffic operation information to fleet operators in the goods movement, transit, and hazardous material industries, and the development of an IVHS International Border Crossing Operations Strategic Plan. Additional IVHS technologies that could be utilized in the San Diego region include vehicle navigation systems, computerized roadway sensors, changeable message signs, television roadway monitoring devices, smart car sharing systems, and advanced highway maintenance and construction technology.

Another related new technology is the future provision of an Automated Highway Vehicle System (AHVS). ISTEA mandated development of an automated highway and a vehicle prototype from which future fully automated intelligent vehicle highway systems can be developed. Caltrans is a core member of The National Automated Highway System Consortium (NAHSC), which was formed to specify, develop, and demonstrate a prototype of a working AHVS in the United States by 2001. AHVS technology will consist of at least two major subsystems, including vehicles and infrastructure. AHVS will showcase features such as adaptive cruise control, object detection, collision warning and avoidance systems, longitudinal and lateral vehicle control, maneuver coordination and navigation systems. The specifications will provide for evolutionary deployment that can be tailored to meet regional and local transportation needs. The Consortium will seek opportunities for early introduction of vehicle and highway automation technologies to achieve early benefits for all surface transportation users. An AHS Proof-of-Technical Feasibility Demonstration occurred during August 1997 on the existing I-15 HOV lanes.

Congestion Pricing

An additional strategy that should be studied in the future is congestion pricing, which is a direct market incentive to ensure that transportation system user pays the "real" costs of the transportation benefits they receive. One purpose of congestion pricing is to reduce travel demand. With the advent of technological advances such as electronic toll collection and traffic management (ETTM) and automatic vehicle identification (AVI) systems, congestion pricing could be developed for a wide variety of transportation facilities.

ISTEA of 1991 provides funding of up to \$25 million annually over the 1992-1997 period to support Federal participation in congestion pricing pilot programs. SANDAG applied for and was awarded a federal technical assistance grant from the Federal Highway Administration (FHWA) for a two-phased pilot program which will allow single occupant vehicle drivers to "Buy-in" to the existing I-15 reversible HOV lanes. The intent of the this pilot program is to test market-based roadway pricing concepts to better manage traffic congestion and air quality in the region while raising revenues for the expansion of transit services and HOV facility improvements.

In the first phase, project-planning activities focused on implementation design including the definition, dimensions, schedule and work activities leading to the start-up of the program. Strategies will be fully developed for the institutional, environmental, marketing and public involvement aspects. Baseline travel behavior data will be collected. Electronic toll collection, access control, enforcement technologies and transit service enhancements will be specified and bid documents prepared. A project monitoring and evaluation plan will be established.

The second phase is separated into two stages. In Stage 1, the interim implementation period, a limited number of users to purchase a permit to operate a single occupant vehicle on the HOV facility to help simulate operational scenarios and provide a basis for user opinion surveys. Operational testing of strategies for maintaining level of service, HOV integrity and timesavings, transit, pricing, operations and enforcement will also be conducted during this phase.

Fastrak is currently in Stage 2, where full implementation began with the electronic toll collection technologies having been fully installed and tested. Now the HOV lanes can be opened to all travelers on a market price varying with congestion, space-as-available basis. Recently, SB 252 (Kelley) was passed allowing Fastrak to continue for four more years. State law requires that all I-15 Fastrak revenues are to be spent on transit and carpool services for the I-15 corridor. Fastrak funds the Inland Breeze (Route 990), an express bus service which began in November 1997.

Long Life Pavement Requirements

Under the 10 Year State Highway Operation and Protection Program (SHOPP) Rehabilitation Plan mandated by Senate Bill 45, long life pavement rehabilitation work will be performed on a State highway if the facility meets the following criteria:

- Average Daily Traffic \geq 150,000 or High % truck traffic ($>10\%$)
- Urbanized areas
- ICES routes
- Or interchanges with designated truck lanes

The plan is to develop a viable rehabilitation strategy that will extend the life of the roadway. The goal for lane reconstruction is a 40-year design period, with the expectation of fewer lane closures for repairs. Maintenance and construction worker safety would improve by minimizing their exposure to traffic. Long life pavement work will result in comfort improvements and increased timesavings for motorists.

At present the section on I-15 that could qualify for long life pavement work is from Miramar Way (PM M13.33) to Center City Parkway (PM M27.65).

COMPARISON OF CONCEPTS

The purpose of this section is to document alternative Transportation Concepts that were considered. The 1995 Transportation Concept for the year 2015 is compared with the 1999 Route Concept Report for the year 2020.

In 1984, the original concepts were set based on the SANDAG Series 6 Population and Travel Forecasts for the year 2005. The 1991 Route Concepts were based on the SANDAG Series 7 Population and Travel Forecasts for the year 2010. The 1995 Transportation Concepts are based on the SANDAG Series 8 Population and Travel Forecasts for the year 2020. Table 16 is comprised of a segment by segment comparison between the 1995 Transportation Concept Report and this current updated Transportation Concept Report.

TABLE 16
COMPARISON OF CONCEPTS

1995 Transportation Concept for 2015 (Series 8 2015 Forecast)		2000 Transportation Concept for 2020 (Series 8 2020 Forecast)	
Location	# Lanes/ Facility Type	Location	# Lanes/ Facility Type
I-5 to SR-94	8F+ I-15/SR-94 IC Revision + TA	I-5 to SR-94	8F+ I-15/SR-94 IC Revision + TA
SR-94 to I-805	6F+ HOV/TA	SR-94 to I-805	8F+ HOV/TA
I-805 to Adams Ave	8F+ HOV/TA	I-805 to Adams Ave	8F+ HOV/TA
Adams Ave to I-8	8F+ HOV/TA	Adams Ave to I-8	8F+ HOV/TA
I-8 to SR-274	8F + HOV/TA	I-8 to SR-274	8F + HOV/TA
SR-274 to SR-52	8F + HOV/TA	SR-274 to SR-52	8F + HOV/TA
SR-52 to SR-163	8F + HOV/TA	SR-52 to SR-163	8F + HOV/TA
SR-163 to Mira Mesa Blvd	10F + HOV/TA	SR-163 to Mira Mesa Blvd	10F + 4ML/BRT
Mira Mesa Blvd to Poway Rd	8F+ HOV /TA	Mira Mesa Blvd to Poway Rd	10F+ 4ML/BRT
Poway Rd to SR-56	8F + HOV/TA	Poway Rd to SR-56	8F + 4ML/BRT
SR-56 to Pomerado Rd	8F + HOV /TA	SR-56 to Pomerado Rd	8F + 4ML/BRT
Pomerado Rd to Centre City Pkwy	8F + HOV/TA + WB	Pomerado Rd to Centre City Pkwy	8F + 4ML/BRT + WB
Centre City Pkwy to SR-78	8F + HOV/TA	Centre City Pkwy to SR-78	8F + 4ML/BRT*
SR-78 to Deer Springs Road	8F	SR-78 to Deer Springs Road	8F
Deer Springs Road to SR-76	8F	Deer Springs Road to SR-76	8F
SR-76 to Riverside Co. Line	8F	SR-76 to Riverside Co. Line	8F

IC = I-15/SR-94 Interchange Revisions

WB = Widen Lake Hodges Bridge

HOV = High Occupancy Vehicle lane(s)

BRT = Bus Rapid Transit (See Transit Component p. 34 for description)

ML = Managed Lanes; When operable will be (3+1) lanes in the peak direction (See Highway Component p. 31 for description)

* Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

TA = Transit Alternative

6F, 8F, 10F = (6, 8, 10) Lane Freeway

2020 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Table 17 shows mainlane facility improvements to I-15 that are apart of the 2020 Transportation Concept. Segments without proposed improvements are not included. The peak hour V/C ratio and peak hour Operating LOS listed assume completion of the proposed mainlane facility improvements.

TABLE 17
2020 TRANSPORTATION CONCEPT FACILITY IMPROVEMENTS

Segment/ County/ Post Mile	Location	Improvement Description	Peak Hour V/C Ratio	Peak Hour Operating LOS*	Concept LOS**
1 SD R0.0-2.2	I-5 to SR-94	Upgrade 6F to 8F + IC Revision + TA	0.91	D	E
2 SD 2.2-R3.4	SR-94 to I-805	Upgrade 6F to 8F + HOV/TA	1.00	E	E
3 SD R3.4-R5.6	I-805 to Adams Ave	Add HOV/TA	0.95	E	E
4 SD 5.6-R6.1	Adams Ave to I-8	Add HOV/TA	0.76	C	E
5 SD R6.1-R9.3	I-8 to SR-274	Add HOV/TA	1.08	F ₀	E
6 SD R9.3-R10.6	SR-274 to SR-52	Add HOV/TA	0.84	D	E
7 SD R10.6-M12.1	SR-52 to SR-163	Add HOV/TA	0.98	E	E
8 SD M12.1-M15.9	SR-163 to Mira Mesa Blvd	Add 4ML/BRT	1.27	F ₁	F ₀
9 SD M15.9-M18.2	Mira Mesa Blvd to Poway Rd	Add 4ML/BRT	1.44	F ₂	F ₀
10 SD M18.2-M19.4	Poway Rd to SR-56	Add 4ML/BRT	1.45	F ₂	F ₀
11 SD M19.4-M26.0	SR-56 to Pomerado Rd	Add 4ML/BRT	1.34	F ₁	F ₀
12 SD M26.0-M27.6	Pomerado Rd to Centre City Pkwy	Add 4ML/BRT + WB	1.23	F ₀	F ₀
13 SD M27.6-R31.5	Centre City Pkwy to SR-78	Add 4ML/TA***	1.18	F ₀	E

HOV = High Occupancy Vehicle lane(s)

LOS = Level of Service

TA = Transit Alternative

IC = I-15/SR-94 Interchange Revisions

V/C = Demand to Capacity

6F, 8F = (6, 8) Lane Freeway

WB = Widen Lake Hodges Bridge

BRT = Bus Rapid Transit (See Transit Component p. 34 for description)

ML = Managed Lanes; When operable will be (3+1) lanes in peak direction (See Highway Component p. 31 for description)

SOURCES: Caltrans District 11 GIS/Travel Forecasting Branch, Caltrans District 11 Advanced Planning Branch, and SANDAG.

* Peak Hour Operating Level of Service includes provision of state highway, transit, and arterial improvements (LOS shown for mainlanes only)

** Concept LOS is based on the SANDAG CMP minimum LOS standard.

*** Managed lanes (3+1) will exist from Centre City Parkway to Citracado Parkway. From Citracado Parkway to SR-78 will be a (2+2) fixed barrier still allowing access to BRT's, HOV's, and SOV's.

LIST OF SYSTEM PLANNING ACRONYMS

ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AHS	Automated Highway System
APCD	Air Pollution Control District
ATSD	Advanced Transportation System Development
AVI	Automated Vehicle Identification
CAA	Clean Air Act
CBD	Central Business District
CCAA	California Clean Air Act
CHP	California Highway Patrol
CLUP	Comprehensive Land Use Plan
CMP	Congestion Management Program
CTC	California Transportation Commission
V/C	Demand Volume to Capacity Ratio
DOR	Division of Rail
DSMP	District System Management Plan
DU	Dwelling Unit
EA	Environmental Assessment
EPA	Environmental Protection Agency
ETTM	Electronic Toll Collection and Traffic Management
F&E	Freeway and Expressway System
FAI	Federal Aid Interstate
FAP	Federal Aid Primary
FAS	Federal Aid Secondary
FAU	Federal Aid Urban
FHWA	Federal Highway Administration
FY	Fiscal Year
GATT	general Agreements on Tariffs and Trades
HOV	High Occupancy Vehicle
IBTC	International Border Trade Corridor
ICES	Intermodal Corridors of Economic Significance
ICT	Imperial County Transit
ICTP	Interregional Route System
ISC	Indirect Source Control
ISTEA	Intermodal Surface Transportation Efficiency Act
ITIP	Interregional Transportation Improvement Program
ITMS	Integrated Traffic Management System
ITS	Intelligent Transportation Systems
IVAG	Imperial Valley Association of Governments
IVHS	Intelligent Vehicle Highway System
LOS	Level of Service
LROP	Long Range Operations Plan
LRT	Light Rail Transit
MIS	Major Investment Study
MSL	Maintenance Service Level
MTDB	Metropolitan Transit Development Board
NAAQS	National Ambient Air Quality Standards

NAFTA	North American Free Trade Agreement
NAHSC	National Automated Highway System Consortium
NCTD	North County Transit District
NHS	National Highway System
NSDCTDB	North San Diego County Transit Development Board
PHV	Peak Hour Volume
PM	Post Mile
PR	Project Report
PSR	Primitive Traffic Operations Center
POE	Port of Entry
RAQS	Regional Air Quality Strategy
RAS	Regional Arterial System
RCR	Route Concept Report
RCTC	Riverside County Transportation Commission
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
R/W	Right of Way
SANDAG	San Diego Association of Governments
SCAB	South Coast Air Basin
SCAG	Southern California Associations of Governments
SCAQMD	South Coast Air Quality Management District
SD&IV	San Diego and Imperial Valley Railroad
SEDSOL	Secretaria de Desarrollo Social
SHOPP	State Highway Operation and Protection Plan
SOV	Single Occupancy Vehicle
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
STOPS	Strategic Traffic Operation Plan for Southern California
TASAS	Traffic Accident Surveillance and Analysis System
TCM	Transportation Control Measure
TCR	Transportation Concept Report
TDM	Transportation Demand Management
TDP	Transportation Development Plan
TSDP	Transportation System Development Plan
TMA	Transportation Management Association
TMC	Transportation Management Center
TSM	Transportation Systems Management
UTC	Ultimate Transportation Corridor
V/C	Volume to Capacity
VMT	Vehicles Miles Traveled
Smart Corridor	(Author's Definition) Employs technology to improve the operating efficiency of all the roadways within a corridor in order to reduce congestion.

LEVEL OF SERVICE (LOS) DEFINITIONS

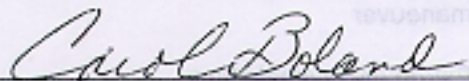
The concept of LOS (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. Levels of Service definitions can generally be categorized as follows:

<u>LOS</u>	<u>V/C</u>	<u>Congestion/Delay</u>	<u>Traffic Description</u>
<i>(Used for two and four lane freeways and expressways)</i>			
"A"	<.34	None	Free flow.
"B"	0.35-0.52	None	Free to stable flow, light to moderate volumes.
"C"	0.53-0.69	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.70-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
<i>(Used for six lane freeways and expressways)</i>			
"A"	< .39	None	Free flow
"B"	0.40-0.59	None	Free to stable flow, light to moderate volumes
"C"	0.60-0.74	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.75-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor

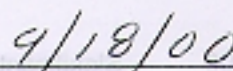
<u>LOS</u>	<u>V/C</u>	<u>Congestion/Delay</u>	<u>Traffic Description</u>
<i>(Used for freeways with eight or more lanes)</i>			
"A"	< .42	None	Free flow
"B"	0.43-0.62	None	Free to stable flow, light to moderate volumes
"C"	0.63-0.79	None to Minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
"D"	0.80-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
<i>(Used for freeways and expressways)</i>			
"F0"	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F1"	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion very long queues.
"F2"	1.36-1.46	Very severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F3"	>1.46	Extremely severe 3+ hours of delay	Gridlock

I approve this Transportation Concept Report as the guide for development of Interstate 15 over the next 20 years.

Submitted By:

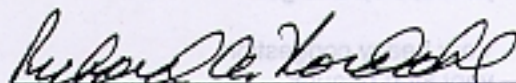


Carol Boland, Chief
System Planning Branch

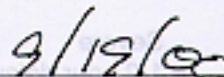


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Recommended By:

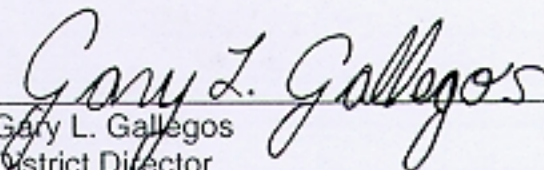


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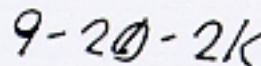


Date

Approved By:



Gary L. Gallegos
District Director



Date